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PREFACE.

The steady demand for the Compend of Medicine is practical evidence of its usefulness and has stimulated the author to make the fifth edition the most complete of any like book. It was not the original intention that it should in any way replace any of the text-books upon the Practice of Medicine. It was written as a compend for the aid of the student, to be used in connection with a larger treatise. The book has however somewhat outgrown the original plan and I find a large number of Physicians use it. I have endeavored to make it more useful to them without affecting the arrangement which has made it so popular with the student. In the fifth edition the entire book has been thoroughly revised and the recent discoveries in the principles and practice of Medicine incorporated. There has also been added a section on mental diseases, a subject daily forcing its importance upon the general practitioner. No medical student's education should be called complete without some knowledge of insanity, the increase of which is the alarm of the evening of the nineteenth century.

D. E. H.

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PRACTICE OF MEDICINE.

PART I.

INTRODUCTION.

The Principles of Medicine constitute what may be termed *Medical Science.*

The Practice of Medicine is the exercise of medical art, and embraces all that pertains to the knowledge of, prevention, and cure of the diseases for which the physician is called upon to direct treatment.

Disease may be defined as any departure from the normal standard of structure or function of an organ or tissue: *Organic disease*, when associated with an organic change in the affected part; *Functional disease*, when the abnormal phenomena are independent of any apparent structural lesion.

The study of disease, whether organic or functional in character, is termed *Pathology.*

Pathology explains the *origin*, *causes*, *clinical history*, and *nature* of the various morbid conditions which may disturb the economy.

The study of individual diseases constitutes *Special Pathology*, while the study of the morbid conditions common to a greater or less number of diseases constitutes *General Pathology.*

Nomenclature, or the naming of diseases, is a subdivision of gen-

eral pathology. The value of nomenclature as applied to disease is that the name chosen shall express the morbid condition involved, as well as its location.

If the morbid condition be an inflammation, the suffix *itis* is added to the anatomical name of the part affected; thus, if the disease be an inflammation of the peritoneum, it is termed *peritonitis*.

If the morbid condition is catarrhal, such as a transudation or flux, the liquid escaping upon a mucous surface, the suffix *rhœa* is used; thus, a catarrhal inflammation of the intestinal tract is termed *diarrhœa* and *enterorrhœa*.

If the morbid condition be a flow of blood or hemorrhage from a mucous surface, the suffix *rhagia* is used; thus, a hemorrhage from the small intestines is termed *enterorrhagia*.

If the morbid condition be pain without inflammation, the suffix *algia* is used. The various forms of neuralgiæ being an example, thus, neuralgia of the stomach is termed *gastralgia*.

If the morbid condition be in the blood, the suffix *æmia* is used. Thus, *Anæmia* is impoverishment of the blood; *Uræmia*, the morbid accumulation of urea in the blood; *Septicæmia*, putrid infection of the blood; *Pyæmia*, purulent infection of the blood.

If the morbid condition be in the urine, the ending *uria* is used to indicate it. *Albuminuria*, when albumin in the urine; *Hæmaturia*, when blood in the urine; *Oxaluria*, when oxalates occur in the urine.

If the morbid condition be a dropsical affection, the prefix *hydro* is added to the part affected. Thus, a dropsical accumulation in the peritoneum is termed *hydro-peritoneum*.

If the morbid condition be that of air in an unnatural part, the prefix *pneumo* to the name of the part is used, as in *pneumo-thorax*.

If the morbid condition be an inflammation of the membrane investing the part inflamed, the prefix *peri* is made use of. Thus, for an inflammation of the investing membrane of the kidney the term is *perinephritis*.

Inflammation of the connective tissue surrounding an organ is designated by the prefix *para*. Thus, *parametritis* for inflammation of the connective tissue about the womb.

A termination in *oma* signifies a tumor, as in *sarcoma* or *carcinoma*.

The suffix *pathy* is used to designate a morbid condition of a part, without indicating its particular character, an example being the use of the term *encephalopathy*.

Morbid Anatomy, or pathological anatomy, is the study of the changes in the tissues and fluids of the body appreciable to the naked eye or with the aid of the microscope.

Histology is the study of the minute anatomy of the tissues and fluids of the body with the microscope.

Pathogenesis is the study of the origin and development of pathological processes.

Lesions (*lædo*, to hurt) are appreciable anatomical changes.

Etiology is that subdivision of general pathology which treats of the causes of disease. The knowledge of the cause of any morbid action is of value in the prevention, management, and removal of disease.

The Causes of disease may be divided into *internal*, *external*, *ordinary*, *specific*, *primary*, *secondary*, *predisposing*, and *exciting*.

Examples of *internal* or *intrinsic causes* are those having their origin in the mind, such as prolonged mental application, intense or long-continued emotional excitement, long-continued mental depression, and the possession of and concentration upon a predominant idea. Other examples are the accumulation of certain products in the blood, such as urea, uric acid, or lacid acid.

External or *extrinsic causes* are such as infectious miasms, viruses, poisons, wounds, and injuries.

An *ordinary cause* is one to which all are more or less exposed, such as atmospherical changes.

Specific or *special causes* are those producing a distinct and specific disease, such as the *bacillus tuberculosis*, causing Tuberculosis; *comma bacillus*, Asiatic Cholera; *oscillaria malariæ*, Malaria.

A *contagious* disease is one whose causative agent is a specific poison that, introduced into the system of another, will give rise to the same disease. An *infectious* disease is also due to a special cause that under certain conditions is capable of unlimited increase or multiplication. An infectious disease may or may not be contagious.

An example of a *primary cause* is any external traumatic injury.

A *secondary cause* is well seen in the secondary pericarditis resulting from an accumulation of urea in the blood, the retention of the urea in the blood being due to a diseased kidney.

A *predisposition* to disease is a special liability or susceptibility to its occurrence, and may be either *inherited* or *acquired*.

Inherited or *constitutional predisposition* to certain diseases is also

termed *Diathesis;* an example is in the offspring of phthisical parents, who are said to be of a *phthisical diathesis.*

Acquired predisposition is such as arises from—

I. *Habits:* Strain upon the nervous system resulting in nervous diseases, or the changes resulting from alcoholic and other excesses.

II. *Age:* Children are very liable to catarrhal disorders. Young adults, to fevers and perverted sexual disorders.
Middle age, to heart, kidney, and digestive disorders, and cancer.
Old age, to degeneration of the heart and vessels.

III. *Occupation:* Miners, weavers, and cutlers, lung diseases, or painters and printers to lead colic.

IV. *Sex:* Women, emotional nervous diseases.
Men, as more exposed, rheumatism and pneumonia.

V. *Race:* Negro, phthisis and scrofula; often exempt from malaria.

Exciting causes are those giving rise to morbid conditions in those already predisposed to certain diseases, but lacking the action which determines their occurrence; to wit: persons predisposed to acute rheumatism, on being exposed to certain atmospheric changes have an attack; fear has produced chorea; anger has caused jaundice; worry has produced cardiac troubles.

The Clinical History of disease includes all the symptoms and signs which may occur from the *period of incubation* until its final *termination.*

Symptomatology is the study of the signs and symptoms of disease or such alterations in the healthy functions giving evidence of the existence of a diseased condition or perverted function. Symptoms may be either *subjective* or *objective. Objective*, when evident to the senses of the observer, as redness, swelling, high temperature, or disorders of locomotion. *Subjective*, when felt or known only by the patient, such as pain, numbness, vertigo, or nausea.

Physical signs are, strictly speaking, objective symptoms, requiring for their elucidation special methods, such as *inspection*, *mensuration*, *palpation*, *percussion*, and *auscultation*. These are chiefly used in examinations of the chest and abdomen.

Associated with the study of symptomatology should be considered the *complications* and *sequelæ* of disease.

Complications are certain conditions which may arise in the course of the original disease, but are not regarded as a necessary accompaniment of the disease; thus hemorrhage from the lungs or hæmoptysis is a complication of tuberculosis; intestinal hemorrhage, the most frequent complication of typhoid fever.

Sequelæ (*sequor*, I follow) are the morbid phenomena left as a result of a disease; thus, valvular disease of the heart often results from an attack of acute articular rheumatism.

The Period of Incubation is that interval between the entrance of a poison into the system and the manifestation of the symptoms.

The Prodromes are the earliest recognizable symptoms; as the rigors or chills during the invasion of fever, and the various aura preceding an epileptic attack.

An *acute disease* is one in which the invasion is sudden and rapid, and as a rule severe; when the symptoms develop less rapidly and are less intense the disease is said to be *sub-acute;* when gradual or slow in development, duration, and intensity, the disease is said to be *chronic*. It must be borne in mind, however, that there may be disturbed action in every intermediate degree between these extremes.

Pathognomonic is the term applied to such symptoms as belong to one particular disease, and are therefore characteristic of it, thus, the rusty sputum of pneumonia, the eruption of variola.

The Termination of a diseased action may occur in one of three ways, to wit: *Cure*, *Secondary Processes*, or in *Death*.

Cure may occur by—

I. *Lysis*, or slow return to health.
II. *Crisis*, abrupt termination, usually with a critical discharge.
III. *Metastasis*, or changing from one location to another.

Secondary processes is when the diseased action is substituted by a new morbid process, to wit: Rheumatism followed by endocarditis; apoplexy by cerebral softening.

By *Death* is meant a complete cessation of tissue change occurring by

I. *Asthenia*, or an ever increasing debility, to wit: phthisis, cancer, Bright's disease.
II. *Anæmia*, or insufficient quantity or quality of blood.
III. *Apnœa*, or non-aeration of blood, to wit: acute lung diseases or croup.

IV. *Coma*, death beginning at the brain, to wit: uræmia, narcotic poisoning, cerebral hemorrhage.

Diagnosis of disease, or the discrimination of diseases, implies a complete, exact, and comprehensive knowledge of the case under consideration, as regards the origin, seat, extent, and nature of all its morbid conditions.

A direct diagnosis is made when the morbid condition is revealed by a combination of clinical phenomena, or some one or more pathognomonic symptoms.

A differential diagnosis is the result when the diseases resembling each other are called to mind and eliminated from each other.

A diagnosis by exclusion is by proving the absence of all diseases which might give rise to the symptoms observed, except one, the presence of which is not actually indicated by any positive symptoms.

Prognosis of disease is the ability or knowledge to foretell the most probable result of the condition present, and involves an amount of tact or knowledge only acquired by prolonged clinical experience.

Treatment. The ultimate and most important object in the study of medicine, from a practical point of view, is to be able to *cure*, *relieve*, or *prevent* disease. This *does not consist solely in the administration of drugs*, but requires strict and faithful attention to *diet* and *hygiene*.

When the object is to prevent disease, such as smallpox by vaccination, it is called *Prophylactic or Preventive* treatment.

When disease is to be broken up, although already begun, such as aborting the chill of malaria, it is called the *Abortive* treatment.

When the disease is allowed to run its natural course without attempting its removal, but being constantly on the alert for obstacles to its successful issue, such as the generally adopted plan of treating continued fevers, it is called *Expectant* treatment.

When the disease is incurable, and removal of marked suffering is the object, it is called *Palliative* treatment.

When marked weakness and prostration are to be overcome, it is called *Restorative* treatment.

FEVERS.

Fever is a condition in which there are present the phenomena *of rise of temperature, quickened circulation, marked tissue change*, and *disordered secretions.*

The *primary cause* of the fever phenomena is still a mooted question, and is either a disorder of the sympathetic nervous system giving rise to disturbances of the vaso-motor filaments, or a derangement of the nervous centres located adjacent to the corpus striatum, which have been found, by experiment, to govern the processes of heat production, distribution, and dissipation.

Rise of temperature is the preëminent feature of all fevers, and can only be positively determined by the use of the clinical thermometer. The term *feverishness* is used when the temperature ranges from 99° to 100° Fahr.; *slight fever* if 100° or 101°; *moderate*, 102° or 103°; *high* if 104° or 105°; and *intense* if it exceed the latter. The term hyperpyrexia is used when the temperature shows a tendency to remain at 106° Fahr. and above.

Quickened circulation is the rule in fevers, the frequency usually maintaining a fair ratio with the increase of the temperature. A rise of *one* degree Fahr. is usually attended with an increase of *eight* to *ten* beats of the pulse per minute.

The following table gives a fair comparison between temperature and pulse:—

A temperature of	98° F.	corresponds to a pulse of	60
"	"	99° F.	"	"	"	70
"	"	100° F.	"	"	"	80
"	"	101° F.	"	"	"	90
"	"	102° F.	"	"	"	100
"	"	103° F.	"	"	"	110
"	"	104° F.	"	"	"	120
"	"	105° F.	"	"	"	130
"	"	106° F.	"	"	"	140

The tissue waste is marked in proportion to the severity and duration of the febrile phenomena, being slight or nil in febricula, and excessive in typhoid fever.

The disordered secretions are manifested by the deficiency in the

salivary, gastric, intestinal, and nephritic secretions, the tongue being furred, the mouth clammy, and there occurring anorexia, thirst, constipation, and scanty, high-colored, acid urine.

GENERAL TREATMENT OF FEVERS.

1. Reduce the temperature. The cold bath or cold pack will do this most decidedly, but entails much labor, and is not altogether free from danger, and so its use is advised only in proper cases. Cool sponging is of decided value. *Quinina*, in gr. xx doses repeated, rarely fails. *Antipyrine*, gr. xx repeated, and *antifebrin*, gr. x–xv repeated, are also recommended, but their tendency to depression must be watched.

2. Lessen the circulation. If the pulse be full, strong, and rapid, use *aconitum*, or *veratrum viride*. If the circulation be weak, *stimulants* with *digitalis* or *caffeina* are indicated.

3. Attend to the secretions. Remove the waste of the tissues by diuretics, diaphoretics, and, if particularly indicated, laxatives. It is better for every fever that the skin should be moist, than that it should be harsh and dry. It is better that the urine should be abundant, than that it should be scanty and thick with tissue waste. Watch the stools that you may judge whether the food, be it solid or liquid, is being digested. The free use of water is beneficial in promoting the various secretions.

4. Nourish the patient. "Don't starve a fever." Administer milk, beef-tea, animal broths, peptonized and other light nutritious food, in small quantities, but at frequent intervals.

Alcohol is only indicated in long-continued fevers or those of asthenic type. Check or discontinue alcohol when its odor is noticeable on the breath.

5. Watch the nursing. Much of the success in the management of fever patients can be attributed to good, sensible nursing. Through it are secured the five important essentials of every sick-room; to wit: cleanliness, cheerfulness, regularity, ventilation, and light.

CONTINUED FEVERS.

All continued fevers are characterized by a steady progress of the febrile movement, without either a too decided rise or fall in the temperature to modify the impression of a continuous action.

SIMPLE CONTINUED FEVER.

Synonyms. Irritative fever; febricula; ephemeral fever; synocha.

Definition. A continued fever, of short duration, mild in character, not the result of a specific poison, rarely fatal, but when death does occur, presenting no characteristic lesion.

Causes. Fatigue, mental and physical; exposure to the sun, great heat or cold; excesses in eating and drinking resulting in an attack of indigestion; excitement and violent emotion. Most common in childhood. It is not a miasmatic fever, neither is it contagious.

Symptoms. Onset sudden with an abrupt feeling of *lassitude*, followed by a decided *chill* or *chilliness*, a sudden and rapid *rise of temperature*, quick, *tense pulse*, *headache*, *dry skin*, *great thirst*, *coated tongue*, *costive bowels*, and *scanty*, *high-colored urine*. Cases due to errors in diet are accompanied by *nausea* and *vomiting*. Attacks occurring during childhood, due to excitement, fright, or the emotions, may be associated with *convulsions*. The *temperature* may within an hour or two reach 103° F., or more, when slight *delirium* may occur. The affection has no constant or characteristic eruption.

Duration. From twenty-four hours to six or seven days.

Termination. Usually within a few hours, to a day or two, the temperature rapidly falls to the norm, an instance of *crisis*; or it may continue for several days, gradually falling to the norm (*lysis*). *Herpes* about the lips and nostrils are often observed at the close of an attack. *Convalescence* is rapid.

Diagnosis. Unless the fever can be attributed to some one of the causes that give rise to it, a doubt as to its character may exist for the first twenty-four hours, after which time it can hardly be mistaken for any other disease.

The following is a familiar instance of this affection. A child, apparently in the best of health, at play, or, may be, at school, suddenly complains of nausea and may vomit, the skin becoming hot, dry, and flushed, or soon covered with an erythematous rash; the pulse is quick and tense, there is headache, pains in the limbs, and great fretfulness or nervousness. The axillary temperature may reach 102°–104° F. The whole aspect is most alarming. A laxative is administered, the surface sponged with a tepid lotion, sleep follows, during which there may be free perspiration, and the following day the child is and continues perfectly well.

Prognosis. Recovery, without sequelæ, the rule.

Treatment. Rest in bed. If evidences of gastro-intestinal disorder be present, order a dozen or more powders containing *hydrargyri chloridi mite*, gr. ⅙; *sodii bicarbon.*, gr. ij; *pulv. ipecac*, gr. $\frac{1}{12}$, one every two hours; some hours after the last powder has been taken, an enema or a *seidlitz powder*. Much comfort follows *sponging* the surface with tepid or cold water and the use of *saline diaphoretics* and *diuretics*. If the pulse be very quick, add small doses of *aconitum*. Cases not associated with digestive disorder have the fever and nervous symptoms relieved by *acetanilidum*, gr. ij–v, according to age, every two or three hours. Liquid diet is most palatable. Cases in which nervous symptoms or insomnia are prominent should have a few doses of *potassii bromidum* during the day, or a bedtime dose of *trional*, gr. v–xx. During convalescence tonic doses of *quininæ sulphas* or *tinctura nucis vomicæ*.

INFLUENZA.

Synonyms. La grippe; grip; contagious catarrh; epidemic catarrhal fever.

Definition. An acute, specific, infectious fever, moderately contagious; sporadic, epidemic, and pandemic; associated with catarrhal inflammation of the respiratory tract, sometimes of the digestive, always accompanied with disturbances of the nervous system and a *debility* out of all proportion to the intensity of the fever and the catarrhal processes and apt to be attended with serious complications and sequelæ.

The disease was almost unknown upon the appearance of the pandemic in the winter of 1889-90.

Causes. A specific poison, the *bacillus of Pfeiffer*, which is uninfluenced by soil, climate, season, or atmospheric changes. The mode of development of the remarkable outbreaks of influenza is not yet understood. One attack rather predisposes to another attack.

Morbid Anatomy. There are no characteristic anatomical lesions.

Symptoms. The clinical history of this disease presents the greatest variations as regards intensity, from the most trifling indisposition in one, to an illness of the gravest kind, terminating in death, in another.

The onset is, in the majority of cases, sudden, with a *chill* followed

by *fever*, the temperature reaching 101° to 103°, a *quick, compressible pulse*, and severe *shooting pains* in the eyes and frontal sinuses and myalgic pains in the joints and muscles. The chill and fever are rapidly followed by *chilliness along the spine, pain in the throat, hoarseness, deafness, coryza, sneezing, injected, watery eye*, and a dry, irritative, *laryngeal cough*, sometimes becoming *bronchial*. The *tongue* is furred, there is *anorexia, epigastric* distress, *nausea, vomiting*, and oftentimes *diarrhœa*. In some instances the digestive symptoms are the most prominent, when *dysentery* may occur. Associated with either the respiratory or digestive form of attack may be marked disturbances of the cerebro-spinal functions, or these latter may be the most prominent symptoms present.

The above symptoms are always associated with depression of spirits, and a *debility* altogether out of proportion to the intensity of the fever and the catarrhal phenomena. Delirium is rare, but marked *hebetude* and *cutaneous hyperæsthesia* are common.

Duration. The fever declines in from four to seven days, when begins a protracted convalescence. Relapses frequently occur, and second, third, or even more numerous attacks in the same individual may be observed, the susceptibility of the system after an attack being remarkable.

Complications. The most frequent are those associated with the respiratory organs. Severe bronchitis, associated in the feeble or aged with fever, typhoid delirium, and tendency to œdema of lungs. Croupous and catarrhal pneumonia are frequent and fatal complications. Cerebro-spinal meningitis also noted.

Sequelæ. A persistent headache; neuralgia; neuritis; insomnia; melancholia; mania; enlargement of lymphatic glands. The great increase in pulmonary phthisis since the pandemic of 1889-90 is more than a coincidence.

Diagnosis. Isolated cases may be mistaken for a "bad cold." But when epidemic, the *sudden onset, marked general catarrh*, and *decided prostration* should prevent error.

At the onset of an epidemic Dengue will be remembered. Cerebro-Spinal Fever has many symptoms in common with the nervous form of influenza.

Prognosis. Recovery is the rule when it occurs in the healthy and vigorous, according to Pepper less than one-half of one per cent. die. *Grave* when the very young, the very old, or those suffering from

organic disease, such as Bright's disease, fatty heart, emphysema, or the tubercular diathesis, are attacked.

Treatment. No specific. During the prevalence of the epidemic influence exposure to cold should be avoided. *Support* the system and pursue a purely symptomatic method of medication. All measures, of whatever kind, which tend to depress the general nervous system, or the functional activity of the respiration, and especially the heart-power, are to be avoided. Patients should be kept in bed until fever declines or longer.

The *catarrh*, *pains*, and *cough* are at least ameliorated by the following:—

℞. Pulvis ipecacuanhæ et opii, ... gr. v
Potassii nitrat., ... gr. v.
Every three hours.

Or—

℞. Phenacetin, ... gr. iij
Pulv. camphoræ, ... gr. j
Caffeina citrat., ... gr. j.
Every two or three hours.

During the last pandemic the disease was frequently aborted in those of vigorous health by a few ten or fifteen grain doses of *antipyrine*, although in those of feeble resisting power much harm resulted from the indiscriminate use of this drug. Dr. Roland G. Curtin warmly recommends *salicinum* as coming "as near to being a specific as we can get with the drugs now in our possession." *Quinina* in full doses at the very onset often aborts the disease.

I have seen excellent results in neuralgic cases with *cinchonidinæ salicylas*, gr. v every four hours.

The frequent inhalation of *tincturæ benzoin comp.*, ʒss–j, in *aquæ bul.*, Oj, relieves the naso-pharyngeal and bronchial catarrh.

If the *bronchial* symptoms become troublesome, use—

℞. Ammonii muriat., ... grs. x
Strychninæ sulph., ... gr. $\frac{1}{48}$
Syr. ipecac., ... ♏v
Spts. frumenti, ... fʒss
Aquæ chloroformi, ... ʒiss. M.
p. r. n.

The complication of *pneumonia* requires prompt stimulating treatment. Dr. Pepper recommends *strychninæ sulph.* in full doses as

the most important remedy against this complication, and suggests the following combination as often valuable:—

℞. Morphinæ sulph., ... gr. j
Quininæ sulph., ... gr. xxxvj
Strychninæ sulph., ... gr. ss
Acid. phos. dil., ... f℥ iij
Glycerini, ... f℥ v
Aquæ., ... q. s. ad f℥ iij. M.

S. A teaspoonful four to six times daily, in water.

During convalescence administer *strychninæ sulph.*, gr. $\frac{1}{48}$, four times daily.

Always have in mind that influenza is often the exciting cause of a phthisical development in those so predisposed.

TYPHOID FEVER.

Synonyms. Enteric fever; gastric fever; nervous fever; enteromesenteric fever; abdominal typhus; autumnal fever.

Definition. An acute, self-limited, infectious *febrile* affection, due to a *special poison;* characterized by insidious prodromes; epistaxis; dull headache followed by stupor and delirium; red tongue, becoming dry, brown, and cracked; abdominal tenderness, early diarrhœa, and tympany; a peculiar eruption upon the abdomen; rapid prostration and slow convalescence; a *constant lesion* of Peyer's patches, the mesenteric glands, and of the spleen.

Causes. Predisposing and exciting.

The chief predisposing causes are *Age* and *Season*. It is claimed by Pepper that a particular susceptibility exists in certain individuals and families to typhoid fever.

The most frequent age is between fifteen and thirty years, and cases are rarely seen in those of forty-five years and over. I have seen well-marked cases with typical symptoms at eighteen months and at five years of age. The autumn months show the most cases, and particularly following a hot and dry summer.

The exciting cause is a *special typhoid germ, the bacillus of Eberth.*

The poison usually results from the *decomposition* of the *typhoid stools and the sputum*, although it has been claimed that the disease may be generated under certain undetermined circumstances, *de novo*, from ordinary filth and decomposition.

The atmosphere is never impregnated with the fever germ. The poison gains its entrance into the system by means of infected water, milk, ice, meat, or other food. The germ is easily destroyed by thorough disinfection of the stools and sputum with heat, mercuric bichloride, or acidum carbolicum, but it is to be borne in mind that *extreme cold will not destroy* the typhoid germ.

Pathological Anatomy. The specific anatomical lesions of typhoid fever are invariably present, and are so characteristic that an examination of the body after death will in any case make known the nature of the disease, even had the symptoms been unknown. These lesions consist in changes in the *Peyerian patches* and *solitary glands*, which may be divided into well-defined stages, as follows:—

First. Stage of Infiltration, or Swelling from infiltration and excessive proliferation of their cellular elements; the surrounding mucous membrane is also infiltrated with cells. The Peyer's patches are thickened, hardened, and elevated above the mucous membrane. The number of patches and glands involved is from three or four up to nearly the entire number. The above changes have been noted as early as the second day.

Second. Stage of Necrosis, Softening, or Sloughing of the solitary and agminate glands. Not all the patches necessarily slough; in a certain number of them the morbid changes are arrested before softening. This stage constitutes the anatomical changes of the second and third week.

Third. Stage of Ulceration following and depending directly upon the softening and sloughing, the sloughs gradually separating, beginning at the periphery of the swollen gland and finally, at about the end of the third week, become detached, leaving ulcers of various sizes.

Fourth. Stage of Cicatrization, or in rare cases *perforation*. The ulcer gradually diminishes in size, the surface becoming covered with a delicate layer of granulations, which is soon transformed into connective tissue and covered with epithelium, the resulting scar being slightly depressed. The gland-structure is never regenerated.

The *Mesenteric glands* become infiltrated, enlarged, and softened, but seldom ulcerate.

The *Spleen* also enlarges and softens, the increase in size beginning in the middle of the first week, reaching its height at the end of the second week, the organ being twice or three times its normal size.

There are, besides, *parenchymatous degenerations*, or *granular changes* in all the tissues of the body.

Symptoms. *Stage of Prodromes.*—The onset is insidious, with a feeling of *general malaise*, vertigo, headache, particularly occipital pain, disordered digestion, disturbed sleep, *epistaxis*, depression, and muscular weakness, followed by a *chill* or *chilliness*, the patient being unable to designate the day when the symptoms began. In rare instances the disease begins abruptly with a chill, followed by high fever; this is particularly the case in malarial districts.

The exact duration of these premonitory symptoms is not known, and may be said to vary from a few days to two or three weeks.

First Week, dates from onset of the fever, when are present *increasing temperature*, *frequent pulse*, *headache*, *listlessness*, the eyes closed as if asleep, *coated tongue*, *nausea*, *diarrhœa* (there may be constipation), the abdomen moderately distended and, upon pressure in the *right iliac fossa*, *gurgling sounds* and tenderness. Upon the *seventh day a few reddish spots resembling* flea bites appear upon the abdomen, chest, or back.

Second Week. The foregoing symptoms are exaggerated; *fever* continuous, frequent and *compressible* and dicrotic *pulse*, tympanitic, *tender abdomen*, *gurgling in the right iliac fossa*, *nocturnal delirium*, severe and constant *headache*, often *stupor*, a short *cough* with distinct *bronchial râles* on auscultation, irregular muscular contractions (*subsultus tendinum*), *sordes* upon the teeth and lips, the tongue loses its coating and becomes more or less dry, the *diarrhœa* continuing. During this stage *deafness* develops, often increasing until profound, and continuing into convalescence. Disturbances of *vision* are frequent in pronounced cases. The *spleen* increases in size.

Third Week. Fever changes from continuous to remittent; the evening exacerbations continue as high as the preceding week, the morning fall growing more decided each day, but all the other symptoms remain about the same until near the end of the week, when a marked amelioration begins.

In a fair proportion of cases all the symptoms grow worse toward the end of the second or during the third week. The *prostration* is extreme, the *stupor* so marked that it is hardly possible to rouse the patient, the *tongue dry*, *hard*, cracked, and covered with a *brown crust*, *sordes* collect on the gums, teeth, and cracked lips, the *pulse* rapid and feeble, the *respirations* shallow and quickened, *retention*

of urine, which contains albumin, and the *stools* voided involuntarily, and bedsores developing, this condition terminating in death, or passing thus into the fourth week.

Fourth Week. The fever decidedly remits; almost normal in morning, the pulse becoming less frequent and more full, the tongue gradually becoming clean, the abdomen lessens in size, the diarrhœa ceases, the patient passing into a slow convalescence, greatly emaciated, which condition may continue for several weeks.

Analysis of Symptoms. *The temperature record of typhoid fever is characteristic.* The fever on the morning of the first day may be stated at 98.5° F., evening 100.5°; second morning 99.5°, evening 101.5°; third morning 100.5°, evening 102.5°; fourth morning 101.5°, evening 103.5°; fifth evening 104.5°. From that time until end of the second week, the evening temperature ranges between 103° and 105°, the morning temperature being a degree or more lower. During the second or third week *hyperpyrexia*, or fever above 105° F., may develop and adds to the gravity of the attack. A high temperature during the third and fourth week is of grave import.

Diarrhœa is the principal intestinal symptom; if absent, the lesion is slight. The stools are at first dark, but early in the second week they become fluid, offensive, *ochre-yellow* in color, resembling "pea soup," and may be streaked with *blood*. They number from *three* to *fifteen* in the twenty-four hours.

Constipation occurs more frequently than is supposed. I have seen fifty cases with constipation within the past five years.

The *urine* has the ordinary febrile characters. Retention is very common. Ehrlich describes a reaction which he believes is rarely met with save in typhoid fever. In examinations of the urine by Ehrlich's *diazo-reaction* in fifty cases of typhoid fever in the wards of the Philadelphia Hospital the reaction was found in thirty-eight. It has also been found in a number of other conditions, particularly those having gastro-intestinal symptoms.

Eruption is almost constant. Consists of from *five* to *twenty* small, *rose-colored spots* on the *abdomen*, *chest*, or *back*, sometimes on the limbs, appearing in crops, lasting about *five days*, *disappearing on pressure* and at *death*. *Returning with relapses*. *Eruption* day from the *seventh* to the *ninth*.

Rarely spots of a delicate *blue* tint—the "taches bleuâtres" of French authors—are observed.

Nervous symptoms are, pronounced *headache*, early and severe, *dullness* of intellect soon following, passing into *drowsiness* and *stupor*, with great *prostration*. *Deafness* pronounced. Sight impaired, in grave cases double vision. *Delirium* low and muttering, generally pleasant in character; always present in marked cases. *Coma vigil* is a grave symptom, the patient lying perfectly quiet with eyes open, taking no heed to his surroundings.

Muscular symptoms are developed late in the second or early in the third week, and consist of irregular contractions or *subsultus tendinum*, and are the result of the great debility. The reverse of muscular contractions, to wit, perfectly motionless in bed, attempting no muscular effort of any kind, is a grave sign.

Convalescence shows great debility and emaciation, great anæmia, and great nervousness often very protracted. It is during convalescence that great irritability of the heart, profuse night sweats, and insomnia occur, and in women loss of hair.

Complications. *Intestinal hemorrhage* is the most frequent and at times the most critical of any of the complications of typhoid fever. The hemorrhage may occur any time between the fourteenth and twentieth day; a sudden decline of the temperature to the norm or below frequently precedes the passage of blood by stool. The hemorrhage is due to the erosion of a vessel during the ulcerative action.

Perforation makes the case almost hopeless. *Peritonitis* without perforation adds to the gravity, but not necessarily fatal. *Lobar pneumonia*, *hypostatic congestion*, and *bronchitis* are frequent occurrences. *Albuminuria* and *acute nephritis* may occur, as may *phlegmasia dolens*. *Bedsores* are frequent, resulting from the impaired nutrition, emaciation, and pressure over bony prominences, and the difficulty of keeping patient clean.

Ulceration of tongue and mucous membrane of cheek is sometimes seen.

Sequelæ. *Paralysis*—either mono- or paraplegia—due to an acute neuritis. *Post-febrile insanity* occurs more frequently after typhoid than any other febrile condition, save perhaps influenza. *Acute Nephritis* associated with œdema. *Alopecia* complete or partial. Trans-

verse *markings* of the *nails*. *Tuberculosis* may develop in those predisposed.

These sequelæ of typhoid fever are all the result of the impaired nutrition and great prostration.

Relapses are common. The symptoms all return abruptly; the duration is half the time of the original attack; occur at the end of the fourth or beginning of the fifth week. Not so fatal as generally supposed.

Abortive typhoid fever are cases of mild character, having many of the typical symptoms, running its course in about two weeks. The so-called *walking cases* are often of this character.

Diagnosis. An error that is constantly being made is that of confounding typhoid fever with the typhoid (depressing) symptoms or condition developing during the course of many acute diseases. The absence of the characteristic *diarrhœa*, the peculiar *eruption*, and the typical *temperature* record should prevent the error.

Enteritis has intestinal derangement and fever alone.

Peritonitis, abdominal symptoms only, with constipation.

Acute miliary tuberculosis often mistaken for typhoid fever, an error difficult to prevent at times.

Meningitis lacks the intestinal symptoms and fever record.

The so-called *typho-malarial* or *malario-typhoid* fever has many symptoms in common, but lacks the diarrhœa, eruption, and temperature record.

Prognosis. A positive prognosis cannot be made. Favorable indications are constipation, slight diarrhœa, low temperature, and moderate delirium. Unfavorable symptoms are obstinate and severe diarrhœa, early high temperature, marked nervous symptoms with coma vigil or stupor, albuminuria, and repeated intestinal hemorrhages.

The prognosis is always more favorable in winter than in summer.

When death occurs it is usually during or about the third week, the result of exhaustion, cardiac failure, or some complication.

The *mortality* in typhoid fever in private practice is about one death in twenty; in hospital practice it varies from one death in five to ten cases, although the cold-bath treatment has greatly reduced the hospital mortality.

Treatment. There is no specific treatment for typhoid fever.

The indications are to sustain life and meet the urgent and dangerous symptoms as they arise.

Flint held that, as it was a self-limited disease, "if the patient can be kept alive, after three, four, or more weeks, recovery will take place provided there be no serious complication. In a case of severe uncomplicated fever the patient is in a situation not unlike that of a person in danger of drowning not far from or perhaps very near the shore. If he drown it is because his strength gives way before the shore is reached. As a person in this situation requires only to be buoyed up by some support, so the fever patient in a similar emergency may only need supporting measures to live."

It is important to secure intelligent *nursing*, a quiet, airy sick-room with an average temperature of 65° Fahr., and the most scrupulous *cleanliness* of patient, bedding, and utensils. The patient must go to bed from the first moment of suspicion that typhoid fever is developing, and remain in bed until convalescence is well established.

The *stools* and *urine* must be *disinfected* the moment voided, and quickly discharged into a sewer or buried.

The *diet* should be nutritious and *liquid* at intervals of every two or three hours. *Diluted milk* is the best article, but broths, soups, liquid peptonoids, coffee, and cold milk and tea may be alternated. A word of caution, however, as to the quantity of food administered. The amount should be small, as the digestive capacity of the patient is greatly lessened by the febrile phenomena. Much harm results in typhoid fever from stuffing the patient.

The tendency to bed-sores must be borne in mind and treated. The use of finely powdered boric acid over irritated parts will often prevent the development of sores.

Attention should be given to the mouth, and the dryness and tendency to collection of sordes prevented by frequently washing the mouth with glycerine and water or weak boric solution.

The following remedies have advocates, claiming that they modify the course of the disease; *hydrargyrum*, *iodum*, *acidum carbolicum*, *mineral acids*, *argentum nitras*, and *ergota*.

A mild case of the disease will do well with *acidum hydrochloricum dilutum*, ♏x–xx, well diluted, every four hours, alternated with *quininæ sulphas*, gr. ij.

Cases with high temperature and costive bowels are sometimes wonderfully benefited by the following:—

℞. Hydrargyri chlor. mite, ... gr. ¼–½
Pulv. ipecacuanhæ, ... gr. $\frac{1}{6}$
Pulv. opii, ... gr. $\frac{1}{6}$
Sodii bicarb., ... gr. j

Repeated every three or four hours, and *quininæ sulphas*, gr. ij, every four hours.

The present so-called "specific treatment" of this disease consists in the administration every second evening, until four doses are taken, of *hydrargyri chloridi mite*, gr. vij–x, which seemingly lessens the frequency of the stools in the later stages of the attack, although slightly increasing them at the time. Also administering from the beginning of the attack—

℞. Tinct. iodi., ... ℥ ij
Acid. carbol. liq., ... ℥ j. M.

Sig.—One, two, or three drops in ice water, every two or three hours, after food.

The *reduction of temperature* is one of the most important indications in the majority of cases of typhoid fever. There is now no doubt that the former views regarding the amount of fever a patient could stand for one or two weeks are responsible for the high mortality in this disease. A temperature of 103° to 105° for a dozen days is dangerous and should be combated. Among the measures that have been used are the calomel powders mentioned above, or *antifebrin*, gr. iij, every two hours in the afternoon until 102° is reached, or *phenacetin*, gr. x, repeated in three or four hours, or *quininæ sulphas*, gr. xv–xx, morning and night. A strong prejudice has arisen against quinina within the last few years, nevertheless, I know I have seen great benefit from its use, and strongly recommend it. *Cold sponging* with water alone or alcohol and water is often of great value in mild cases. The *cold pack* is a very powerful antipyretic and, in cases with temperature of 104° or 105°, in which the cold bath cannot be employed, can be made use of. The bed should be protected by a rubber cloth, and the patient, with his clothing removed, should be wrapped in a sheet wrung out of cold water. The surface should be rubbed briskly through the sheet, and from time to time cold water is freely sprinkled over the sheet. Friction must be continued during the pack,

and ice cloths or cap placed on the head. The duration of the cold pack is determined by the temperature and the reactive powers of the patient. It is often well to administer an alcoholic stimulant or a hypodermic injection of strychninæ sulphas before the pack and, may be, after.

The *cold bath* after the method of Brand, or "tubbing," has proven most prompt and decided for reducing temperature. It consists in the systematic employment of general cold baths with frictions whenever the temperature reaches 102.2° F. As often as the temperature, taken every three hours in the mouth or rectum, is over 102.2°, the patient receives a bath lasting fifteen or twenty minutes. He wears a thin muslin garment or, wrapped in a sheet, he is given a stimulant and carefully lifted into the bath of 65° or 70°, some cold water being poured over his head and shoulders to lessen the shock; the head rests on an air pillow, the body submerged to the neck. *During the whole period of the bath the patient must be briskly rubbed.* The friction and affusion are of value in preventing chill and cyanosis. After the bath the wet linen is quickly removed and the patient placed in bed, wrapped in dry sheet, and covered with a blanket. A stimulant is again given after the bath and if tendency to cyanosis or heart failure a hypodermic injection of strychnina. The temperature is taken after patient is placed in bed and again in half to three-quarters of an hour, and if not then 102° is not again taken for three hours. The good effects of the bath are, reduction of temperature, with the intellect clearer, the stupor lessens, the muscular twitchings diminish, insomnia overcome, sleep usually following a bath, and a general stimulating effect upon the heart and nervous system.

Diarrhœa should not be checked unless it exceeds *three or four stools* in twenty-fours, when may be used—

℞. Bismuth subnit., ... gr. xx
Acid. carbol., ... gtt. j
Tinct. opii deodorat., ... gtt. x–xv
Mucil. acaciæ, ... ℥j
Aquæ, ... ℥iij. M.

Sig.—Every three or four hours.

Or—

℞. Cupri sulph., ... gr. ⅛
Extracti opii, ... gr. ¼. M.

Sig.—In pill, every four hours.

Or— ℞. Salol, ... gr. iij
Bismuth. salicyl., ... gr. v. M.
Sig.—In powder after each stool.

Or— ℞. Acid. sulph. aromat., ... ♏xv
Tinct. opii deodorat., ... ♏x. M.
Sig.—In water every three hours.

For *Tympanites:* cold compresses or an ice bag to the abdomen. Rarely, a turpentine stupe is of value. Page recommends the gentle introduction of a catheter far up the rectum to relieve a powerless bowel, as urine is drawn from a paralyzed bladder. Tympany with constipation is relieved by the use of *olei terebinthinæ*, gtt. x, *olei ricini*, gtt. xv, in emulsion every three or four hours.

For *Thirst:* cooling drinks in moderation, or pellets of ice slowly dissolved in the mouth.

Headache: cold to the head, mustard to the neck, and foot baths: if these fail to relieve, *morphina* or *atropina* hypodermically.

Delirium: if from debility, increase the stimulants; other causes, use *morphina*, if active.

Insomnia, if of long duration, use *trional* gr. xv-xxx.

Restlessness and *coma vigil*, *stimulants*, and *ice cap.*

Debility: food every *two* or *three* hours; do not permit sleep to interfere with nourishment. *Stimulants* are indicated early, the best guide being the heart's action; an average amount would be ℥vj *spts. vini gallici*, per diem, or *chloroformi*, ♏ij-v, every hour or two, well diluted, or *moschus*, gr. x, repeated p. r. n.

The bladder should be examined at each visit.

Intestinal hemorrhage: at once *morphina*, gr. ¼, hypodermically, and *ext. ergotæ fld.*, f℥j, repeated p. r. n., or *Monsell's solution*, gtt. ij-iv, every two hours, or *acidum tannicum*. gr. ij-v, with *pulv. opii et ipecacuanhæ*, gr. iij every hour, and cold to abdomen.

Perforation and *peritonitis:* at once *morphina sulphas*, gr. ½, hypodermically, followed with *extractum opii*, gr. j every hour, hot applications to the abdomen and bold stimulation.

Lobar pneumonia and *bronchical catarrh:* dry cups and the use of the following:—

℞. Ammonii muriat, ... ℥ij.
Strychninæ sulph., ... gr. ⅓.
Spts. chloroformi, ... ℥jss.
Aq. lauro-cerasi, ... q. s. ad. f℥iv. M.
Sig.—Dessertspoonful every two, three, or four hours.

Convalescence: The patient must be most guarded in exercise or mental occupation. Liquid diet for ten days to two weeks after normal afternoon temperature. Cardiac palpitation and excessive sweating are not infrequent, and can be controlled with a combination of *quinina* and *belladonna*. If the stools continue quite liquid with a little bright blood now and then, showing some remaining ulceration, use *argentum nitras* in pill form with *nucis vomicæ* or *strychnina*. The addition of extract of malt or porter to the diet is of value in a prolonged convalescence.

TYPHUS FEVER.

Synonyms. Contagious fever; ship fever; jail fever; exanthematic typhus (German); petechial typhus; spotted or putrid fever.

Definition. An acute, infectious, febrile, *epidemic* disease; highly *contagious*, and characterized by sudden invasion, profound depression of the vital powers, sickening odor, and a peculiar maculated and petechial eruption, favorable cases terminating by *crisis* about the fourteenth day. No lesion.

Cause. A special infecting germ, the character of which is unknown, but which is influenced by filth and overcrowding. Rarely seen in the United States except in seaports, where brought by emigrants.

Pathology. No constant lesion peculiar to the affection. Blood is profoundly altered, dark, thin, with lessened fibrin; tissues dark, soft, and flabby.

Symptoms. Begins abruptly; *chill* followed by violent *fever*, temperature within a few days reaching 104° to 105° F.; a frequent, bounding *pulse*, soon becoming small, weak, and rapid; the cardiac impulse and first sound almost effaced; severe *headache*, followed by violent *delirium;* from the *fifth* to the *seventh* day, a coarse, red, diffused, measly *eruption*, with a mottling of the skin all over the body, except the face, not disappearing on pressure; the face has a uniform *deep, dusky flush*, the skin has a *glazed* appearance, the pupils contracted, the eyes injected. With the development of the disease there is *cutaneous hyperæsthesia*, muscular soreness, and *tenderness* over the *tibia*. There is great *prostration*, great muscular feebleness, *vertigo, tremor*, and *subsultus; constipation* the rule. End of the second week,

the temperature suddenly declines and the patient passes into a *rapid convalescence.*

Complications. Pneumonia and swollen parotid glands are common.

Diagnosis. *From typhoid fever*, the age, season, onset of the disease, character of the eruption, and the intestinal symptoms.

Measles begin milder, with coryza and cough, and never have such pronounced nervous phenomena, but there occurs an early eruption, appearing on the face.

Cerebro-spinal fever has many symptoms in common, and but for the rarity of typhus in this country would be more puzzling. The headache and rigidity of the muscles of the neck are much more pronounced in cerebro-spinal fever and the prostration less than in typhus fever. The eruption of typhus is characteristic and should prevent error.

Prognosis. *Unfavorable indications :* high temperature, frequent pulse, early stupor, presentiment of death. *Favorable :* youth, moderate temperature and pulse, and mild nervous phenomena.

The *duration* about two weeks ; *mortality* varies from five to thirty-five per cent.

Treatment. Symptomatic. As *typhus fever* is distinctly contagious, *isolation* is imperative, with immediate removal and *disinfection* of the patient's excreta.

All cases are benefited by small doses of the *mineral acids* alternating with *quininæ sulphas.*

For high temperature, cold sponging, cold pack, or full doses of *quinina.* Also, *antipyrine*, *antifebrin*, or *phenacetin*, or the systematic use of the cold bath or "tubbing," as now used in typhoid fever.

For the *headache* and *delirium* cold to the head. In the young and strong, a few leeches to the temple, and *chloral*, with or without the *bromides.*

For constipation, mild laxatives.

Debility : alcohol early and in full doses, or *spiritus chloroformi* in drachm doses whenever danger of collapse.

Convalescence : such tonics as *quinina* and *strychnia.*

CEREBRO-SPINAL FEVER.

Synonyms. Epidemic cerebro-spinal meningitis; epidemic cerebro-spinal fever; spotted fever; cerebro-spinal typhus.

Definition. A malignant *epidemic* fever, characterized by headache, vomiting, painful contractions of the muscles of the back of the neck, retraction of the head, hyperæsthesia, disorders of the special senses, delirium, stupor, coma, and frequently an eruption of petechia or purpuric spots—a subcutaneous extravasation of blood. Lesions of cerebral and spinal membranes are found at the *post-mortem*.

Cause. A special micro-organism, of oval shape, occurring mostly in pairs and faintly tremulous, resembling those found in pneumonia and erysipelas, though hardly identical. Bad hygiene seems to favor the development of this affection, but can hardly be considered its cause.

The disease seems to have a predilection for the young. Occurs most frequently in the winter months. Slightly if at all *contagious*.

We have no positive knowledge of the manner in which the virus gains entrance into the system.

Pathological Anatomy. The extent of lesion present in a given case depends upon the duration of the illness. In cases rapidly fatal, it is probable that the individual is overwhelmed by the poison ere the characteristic anatomical changes have had time to develop.

The changes in this disease are twofold: those due to the direct action of the infecting poison upon the blood, producing the group of symptoms constituting the fever and complications, and those giving rise to the local inflammation, viz.: *Hyperæmia* of the membranes of the brain and spinal cord, followed by an *exudation of lymph* and an *effusion of serum*, resulting in pressure on the brain and cord. The inflammatory changes are more marked in the membranes at the base of the brain than elsewhere. The lungs, spleen, stomach, liver, kidneys, and bladder are in various stages of congestion.

If the patient survive long enough inflammatory changes occur in the cranial and special nerves and the organs of special sense.

Symptoms. Divided, according to the severity of the lesion, into three groups: the *common* form, the *fulminant*, and the *abortive*.

The Common Form begins abruptly with a *chill*, excruciating *headache*, persistent *nausea*, *vomiting*, *vertigo*, and an overwhelming sense

of *weakness*. Within a few hours the muscles of the back of the neck become *rigid* and *retracted* (tonic spasm), with decided *pain* upon moving the head; this rigidity and retraction soon extends to the back, when *opisthotonus* occurs. There is great restlessness, and the surface of the body becomes highly sensitive (*hyperæsthesia*). Cramps in the muscles of the legs and elsewhere, and spasmodic twitchings of the lips and eyelids come and go, and, finally, *convulsions* or *delirium* occur. Intolerance of light, and in some cases *amaurosis*, more or less *deafness*, loss of sense of *smell* and *taste* soon following. The *temperature* and *pulse* records are irregular. From the *first* day to the *fifth* an *eruption* of petechiæ or purpura occurs in the majority of cases, and also an herpetic eruption beginning as herpes labialis appears. The *tâche cérébral* is usually to be obtained. The disease reaches its height in from three to eight days, and passes into *stupor* and *coma*, or ameliorates and passes into a protracted convalescence.

The Fulminant Form. Severe *chill, depression*, and in a few hours *collapse*. The patient is overcome by the poison and never reacts.

The Abortive Form consists of one or more pronounced characteristic symptoms during the course of an epidemic.

Complications. Pneumonitis; endocarditis; pericarditis; typhoid fever; pleuritis; intestinal catarrh in infants.

Sequelæ. Result from thickening of either the cerebral or spinal membranes. Persistent *headache; blindness*, or *deafness*, partial or complete; mental feebleness; chronic hydrocephalus; *epilepsy*, or different forms of *spinal palsies*.

Diagnosis. *Typhoid fever* begins slowly, has a characteristic temperature record, *without so intense* headache, muscular rigidity, opisthotonus, vomiting, early delirium, ending in coma.

Typhus fever has higher fever, is of longer duration, and has a peculiar measly eruption, is *not* attended with muscular rigidity and retraction, hyperæsthesia, nor disorders of the special senses.

Tubercular meningitis is *not* epidemic, has no characteristic eruption; is preceded by long prodromes, and runs a tedious course.

A congestive chill resembles the *fulminant* cases in suddenness of depression, but the latter has not the history of the former.

Inflammation of the meninges of the cord is due to exposure to cold or syphilis, and is not attended with cerebral symptoms or an eruption.

Smallpox in the first days, with the severe lumbar pains, headache, vomiting, and rash, may cause error.

Prognosis. Varies according to epidemic; from twenty to fifty, and even seventy-five per cent. die.

Treatment. There is no abortive plan of treatment for cerebro-spinal fever, nor can the antiphlogistic treatment of the inflammatory symptoms be advised. Like the infectious diseases in general, sustaining measures are indicated in all but the most sthenic cases.

Nutritious and easily assimilated food, such as milk, eggs, meat-juice, and broths, should be given at regular intervals night and day. If food cannot be taken by the mouth, nutritious enemata should be substituted.

The drug that holds the highest place in the treatment of this disease is *opium*. The hypodermic use of *morphina*, gr. ¼ to ½ every two or three hours; or *extractum opii*, gr. j every hour until stage of effusion, when *quinina* in tonic doses, and *potassii iodidum* are indicated. Prof. Da Costa alternates *potassii bromidum* with *opium*, especially in children. *Ergota* in the early stages would seem to be indicated, but in practice it is of little or no value.

Caution in the use of the coal-tar products must be exercised, as the relief of pain and spasm may be the onset of the stage of collapse instead of the beneficial effects of these drugs.

Locally, cold compresses to the head and spine is a most valuable measure, continued for hours at a time.

For *sequelæ*, *potassii iodidum*, a course of *hydrargyrum*, *oleum morrhuæ*, and flying blisters along the spinal column.

RELAPSING FEVER.

Synonyms. Febris recurrens; famine fever; bilious typhoid fever; spirillum fever.

Definition. An acute infectious, *contagious*, epidemic, febrile disease, self limited, characterized by a febrile paroxysm, lasting about six days, succeeded by an entire intermission of the same duration, which is in turn followed by a *relapse* similar to the first seizure. Associated with alterations in the viscera, and by the presence in the blood of a specific micro-organism—the spirillum of Obermeyer. No specific lesion.

Cause. A specific poison; *contagious;* acquiring the greater

activity the more filthy, crowded, and unhealthy the population amid which it prevails.

Pathological Anatomy. During the febrile paroxysm *only*, the blood contains minute cork-screw-shaped organisms or *spiral* filaments —*spirilli*, constantly twisting and rotating—the *spirillum Obermeieri*. The spleen is enlarged and usually covered with a fresh fibrinous exudation. The capsules present a mottled appearance. The splenic pulp is more or less softened and swollen and shows enlarged Malpighian bodies. The liver and kidneys are swollen and congested.

Symptoms. No *prodromes*. Onset abrupt, with fever, 102°–104°; frequent, rather *weak pulse*, *headache*, nausea, *vomiting*, and lancinating *pains* in limbs and muscles, marked in the calf of the leg; *second day*, feeling of *fullness* and *pressure* in right and left hypochondrium, due to swollen liver and spleen; *jaundice* is frequent; *seventh day* fever ends by *crisis; fourteenth day* symptoms return in milder form, continuing about four days, when enters slow convalescence, much emaciated. *No eruption*. Several *relapses* may occur.

Diagnosis. *Yellow fever* has many points of resemblance, but has a shorter febrile stage, remission not so complete, vomiting late and characteristic, normal spleen, and the late appearance of yellow color.

Remittent fever begins with a decided chill, followed by fever and sweats, and not the progressive rise of temperature till the fifth or seventh day.

Prognosis. Recovery the rule, but protracted, and decided *emaciation* results.

Treatment. *Expectant.* Act on secretions; nourish patient and meet urgent symptoms. For fever, antipyretic doses of *quinina*, which, however, has no power to prevent the relapses; for pain, hypodermic injections of *morphina;* for nausea and vomiting, *acidum carbolicum* or *cerii oxalas;* during remission, *ferrum* and *quinina* in tonic doses.

PERIODICAL FEVERS.

These affections are characterized by the distinct periodicity of the phenomena, having intervals during which the patient is wholly or nearly *free from fever*.

INTERMITTENT FEVER.

Synonyms. Ague; chills and fever; malarial fever; swamp fever.

Definition. A *paroxysmal* fever, the phenomena observing a regular succession; characterized by a cold, a hot, and a sweating stage, followed by an interval of complete *intermission* or apyrexia, varying in length according to the variety of the attack and the presence in the blood of the hæmatozoa of Laveran.

Cause. The presence in the blood of a specific vegetable micro-organism. Klebs and Tommasi-Crudeli claim to have isolated a germ—*Bacillus Malariæ*—from the low-lying atmosphere over marshes and from the soil, which produced a malarial paroxysm with enlarged spleen in an inoculated rabbit.

Laveran discovered a germ in the human blood of patients suffering from malarial fevers which is now known as the *hæmatozoa* of Laveran, and which has since been found always present in malarial attacks. These germs are true parasites and exhibit several varieties of form and size, and it is possible that there may be several species which are capable of causing the distinct types of the disease, as tertian, quartan, intermittent, or remittent.

Laveran describes the chief forms of the hæmatozoa as consisting of *amœboid spherical bodies with nuclei; crescentic shapes with nuclei; rosettes;* and *flagellate bodies.* Laveran considers the parasite as a single but polymorphic organism, and a particular form of the germ is peculiar to a particular type of the disease. Osler, who has devoted much time to the study of the subject, "believes that different forms of the germ belong to distinct species, and that they are not all different stages in the development of one microbe."

The period of incubation varies from a few days to weeks, months, or even years, an auxiliary condition, such as exposure to cold, over-exertion, excesses in eating and drinking, or great excitement, often being necessary to give efficiency to the special cause.

Either sex and all ages are susceptible to the poison.

The mode of infection is not positively understood. It often enters the system in the inspired air, and no doubt also in contaminated drinking-water or other fluids.

Pathological Anatomy. Blood dark, from the formation of pigment (*Melanæmia*). Spleen engorged and swollen (*Ague cake*). Liver swollen and engorged during paroxysm.

Varieties. *Quotidian* when a daily paroxysm; *tertian* when every other day; *quartan* when it occurs first and fourth days; *octan* when weekly; *duplicated quotidian* when *two* paroxysms daily; *duplicated tertian*, two every second day; *double tertian*, daily paroxysm, but more severe every second day. *Dumb ague*, or masked ague, presents irregularity of the characteristic phenomena.

Symptoms. Each paroxysm has three stages, the *cold*, *hot*, and *sweating*.

Cold stage begins with *prodromes*, lassitude, yawning, headache and nausea, followed by a *chill;* the teeth chatter, skin pale, nails and lips blue, the surface rough and pale, the so-called *goose-skin*, or *cutis anserina*, nausea, and great thirst, while the thermometer in the axilla or mouth shows a decided *rise of temperature*, 102° F.–104°; these phenomena continuing from one-half to an hour.

Hot stage begins gradually, by the shivering ceasing, the surface becoming *hot* and flushed, the temperature rising to 106° F., or more, *pulse full*, *headache*, *nausea*, *intense thirst*, *dry*, flushed, swollen skin, *scanty urine*, and other phenomena of *pyrexia*, continuing from one to eight or ten hours.

Sweating stage begins gradually, first appearing on the *forehead*, then spreading over the entire surface; the *fever lessens*, the temperature rapidly falling to 99° or 98°, pulse less full, headache lessens, and a general feeling of comfort exists, sleep often following; duration of the sweating from one to four hours, when the *intermission* occurs, the patient apparently well, except for a feeling of general debility.

The occurrence of the next paroxysm depends upon the variety of the attack.

The paroxysm may be ushered in by a decided pain in one or more nerves, instead of the cold stage, to wit: "*brow ague*."

Diagnosis. No difficulty when the characteristic *chill*, *fever*, and *sweats* occur and enlarged spleen, and the presence of the bacillus in the blood.

Hectic fever. Distinguished by its irregularity, and occurring secondary to an organic disease; spleen usually normal size, and absence of bacillus in blood.

Pyæmia produced by other causes than malaria.

Nervous chills show an *absence* of the temperature rise.

Prognosis. Recovery the rule. Without treatment many cases

end favorably after several paroxysms, others passing into the *chronic* form, or *malarial cachexiæ*.

Treatment. *Cold stage* can be averted and the other stages greatly modified by a hypodermic injection of either *morphinæ sulph.*, gr. ⅛–¼, or *pilocarpinæ hydrochloras*, gr. ⅛, or *chloroformi spts.*, fʒj, by the stomach. *Hot stage*, cool drinks and cold sponging. *Sweating stage*, when excessive, sponging with *alumen* and hot water.

Intermission; at once a brisk purgative, followed by *cinchona* in some form, the most efficient being *quininæ sulph.*, gr. xx–xxiv, in solution or freshly-made pills, in one or two doses, *three* to *five hours before* the expected paroxysm. Many substitutes are lauded to replace the salts of cinchona bark, but without a doubt quinina is a specific in the strictest sense of the term.

After the *paroxysms* are broken up, use *liq. potassii arsenit.*, gtt. v–x, *t. d.*, for a long time, or *tinct. ferri chloridi*, gtt. xx, every four hours, or a combination like the following:—

℞. Ferri reducti,
Quininæ sulph., ... āā . . . . . gr. xlviij
Acidi arseniosi, ... gr. j
Ol. pip. nigr., ... gtt. xv. M.
Ft. pil. No. xxiv.

Sig.—One pill after meals, continued for one month or longer.

Relapses being common, *quinina* should be given on the *second* or *third* day, *fourth* to the *sixth*, *twelfth* to the *fourteenth*, and *nineteenth* to the *twenty-first* days.

If the *spleen* be *enlarged*, and it usually is in long-continued cases, or those becoming chronic (marked anæmia, gastric distress, constipation with depression of spirits associated with headache coming in paroxysms are the prominent symptoms of the cachexia), use locally *ung. hydrargyri iodidi rubri* and internally *ergota*, or *ergotine* (aq. ext.) hypodermically over the splenic region, and tonic doses of *quinina*, *ferrum*, and *arsenicum*.

REMITTENT FEVER.

Synonyms. Bilious fever; bilious remittent fever; marsh fever; typho-malarial fever.

Definition. A *paroxysmal* fever, with exacerbations and *remissions*, but in which the temperature is constantly above the normal;

characterized by a moderate cold stage (which does not recur with each paroxysm); an intense hot stage, with violent headache and gastric irritability; and an almost imperceptible sweating stage, which is frequently wanting.

Cause. The presence in the blood of a specific vegetable micro-organism, either the *Bacillus malariæ* (Klebs and Tommasi Crudeli), or the *hæmatozoa* of Laveran (*vide* Intermittent Fever).

Pathological Anatomy. Blood dark (*Melanæmia*); spleen enlarged, soft, filled with blood, and of an *olive* color; liver congested and swollen, and of a *bronze* hue; the brain hyperæmic and olive-colored; gastro-intestinal canal markedly hyperæmic.

Symptoms. *Cold stage:* moderate *chill*, the temperature rising one or two degrees, coated, dry tongue, *oppression at the epigastrium*, slight *headache*, and pains throughout the body.

Hot stage: persistent *vomiting*, furred tongue, *full pulse*, rising to 100 or 120, flushed face, *injected eye*, violent *headache*, *pains* in limbs and loins, hurried *respiration*, the *temperature* rising to 104° F., or 106°. The bowels costive, *stools tarry* and offensive, the urine scanty, high colored and ureaic, and the *surface* becoming *yellowish*. *Delirium* occurs when the temperature is very high.

Sweating stage: after six to twenty-four hours, the above symptoms abate, and *slight sweating* occurs, the *pulse*, *headache*, and *vomiting* subside, and the *temperature* falls to 100° F., or 99° F.

This is the *remission*, during which the symptoms of a mild pyrexia are present.

After some *two* to *eight* or *twelve* hours, the symptoms of the hot stage return, generally *minus* the *chill*, and this is termed the *exacerbation*, which is in turn again followed by the *remission*.

Duration. From seven to fourteen days the average. Frequently the fever *ceases to remit*, and instead becomes *continuous*, the symptoms resembling, if they are not identical with, the *typhoid state*, whence the term *typho-malarial fever*, or *malario-typhoid fever*.

Sequelæ. The *malarial cachexia* results when the poison has not been eliminated from the system.

Persistent headache and vertigo are the results of the intense meningeal hyperæmia that sometimes occurs.

Diagnosis. In *intermittent fever* each paroxysm begins with a chill, while the chill seldom recurs in remittent fever; a distinct *intermission* follows each paroxysm of the intermittent form, while a

remission occurs in remittent, the thermometer showing that the fever does not wholly disappear; during the *intermission* the patient is apparently well; such is not the case in the remission of remittent fever.

Typhoid fever is mistaken for remittent fever, but the absence of the characteristic temperature record, diarrhœa, eruption, tympanites, deafness, and severe prostration should prevent such an error.

A diagnosis can always be made absolutely by an *examination of the blood*.

Prognosis. Uncomplicated cases are favorable.

Treatment. *Quininæ sulphas*, gr. xvj–xx per diem, is the remedy. Better administered during the *remission*, if possible. If an irritable stomach prevents its administration by the mouth, use it by the *hypodermic method* or in a *suppository*. During the *hot stage*, cool sponging, cold to the head, and if a tendency to cerebral congestion, dry or wet cups to the nape of the neck and—

℞. Tinct. aconit. rad., ... gtt. j–ij
Liq. potas. citrat., ... ʒ ij
Liq. ammon. acetat., ... ʒ ij. M.
Every two hours.

During the remission, relieve the intestinal canal with—

℞. Hydrargyri chlor. mite, ... gr. v
Sodii bicarb., ... gr. v
Pulv. ipecac., ... gr. ½. M.
In pulv. p. r. n.

The same precautions are essential after the paroxysms are broken up, to prevent their return on the septenary periods, that were recommended for intermittent fever.

For convalescence: *Ferrum*, *arsenicum*, and *strychnina* are indicated.

PERNICIOUS FEVER.

Synonyms. Congestive fever; malignant intermittent fever; malignant remittent fever.

Definition. A malignant, destructive malarial fever, which may be of the intermittent or remittent form; characterized by *intense congestion* of one or more internal organs, *together* with dangerous perversion of the functions of innervation.

Cause. A high degree of malarial poison. (*Vide* Intermittent Fever.)

Varieties. *Gastro-enteric; thoracic; cerebral; hemorrhagic; algid.*

Symptoms. Any of these varieties may begin either as an *intermittent* or *remittent* fever; again, the *first paroxysm* is rarely pernicious, but appears as the ordinary malarial attack.

The *gastro-enteric* variety has as distinctive features, *intense nausea* and *vomiting*, *purging* of thin discharges mixed with blood, *tenesmus*, *burning heat* in *stomach*, intense *thirst*, frequent, weak *pulse*, face, hands, and feet *cold*, with *shrunken features*, and an intense depression of all the vital forces. This condition continues from half an hour to several hours, when either an inter- or a remission occurs.

Thoracic variety often combined with the one just described. Its characteristic features are due to overwhelming congestion of the lungs, such as *violent dyspnœa*, *gasping* for air, fifty to sixty respirations per minute, *oppressed cough* with slight amount of blood-streaked sputa, *frequent*, *weak pulse*, *cold surface*, and terror-stricken features. Duration same as the above.

Cerebral variety, due to intense congestion of the brain; sometimes effusion of serum into the ventricles, or even rupture of small blood-vessels. Characterized by *violent delirium*, followed by *stupor* and *coma*, *slow*, *full pulse*, the surface either *flushed* or *livid*. Cases may either resemble *apoplexy*—comatose variety, or *acute meningitis*—delirious variety. Duration same as the other forms.

Hemorrhagic variety, or the yellow disease, as it has been termed, begins as an ordinary inter- or remittent fever, soon followed by signs of *internal congestion*, to wit: *nausea*, *vomiting*, *dyspnœa*, severe *pains* over *liver* and *kidney*, continuing for a few hours, when the *surface* suddenly turns *yellow* and *bloody urine* is voided, after which an inter- or remission and marked abatement occur, to be sooner or later followed by a second paroxysm, which is more severe, with signs of *cerebral congestion*. Blood may also escape from other parts than the kidneys.

Algid variety is characterized by intense *coldness* of the surface, while the rectal temperature ranges from 104° to 107° F. The attack begins with a *chill*, which is soon followed by *fever* of variable duration, when the body becomes *cold*, the axillary temperature falling to 90°, 88°, or even 85° F., a *cold sweat* covers the surface, the tongue is

white, *moist*, and *cold*, the *breath* is *icy*, the *voice* feeble and indistinct, the *pulse slow*, *feeble*, and often *absent* at the wrist, and with all these symptoms, the patient complains of a sensation of *burning* and *intense thirst*. The *mind is clear*, but the countenance is *death-like*.

Duration. Pernicious fever, in any of its forms, may continue from a few hours until one, two, or three days. Recovery is rare after a *second*, almost never after a *third*, paroxysm.

Diagnosis. A positive diagnosis can always be made by an examination of the blood.

Yellow fever is most apt to be confounded with the *hemorrhagic* variety, and as they both occur in the same localities, the diagnosis is difficult; the early *yellowness* of the surface, with *hæmaturia*, and the absence of the *black vomit*, and epidemic prevalence, are the chief points of distinction.

The *cerebral* variety may be mistaken for *cerebral apoplexy*, *meningitis*, and *uræmic convulsions*. Nor is it always an easy matter to differentiate between these conditions.

The *gastro-enteric* variety may be mistaken for the early stage and the *algid* variety for the later stage of *cholera*, but the epidemic prevalence of the latter should be of material aid in determining the diagnosis.

Prognosis. In all varieties the result is unfavorable, unless it can be controlled prior to the *second* paroxysm. Cases in which an *intermission* occurs are better controlled than where a remission follows. The mortality is *one* in *eight* from all plans of treatment.

Treatment. The first indication in all varieties is to bring about *reaction*. In the *cold stage*, heat to the surface, with stimulating lotions; in the *hot stage*, cold to the surface and the hypodermic injection of *morphina*, gr. ¼, at once. After *reaction*, *quininæ sulphas*, not less than gr. xl, repeated p. r. n.; administer by stomach, rectum, or, better still, by hypodermic injection. Dr. Bartholow pronounces the following one of the best formulæ for the hypodermic use of quinina:—

℞. Quininæ disulph., ... gr. 50
Acid. sulph. dil., ... ♏c
Aquæ font., ... ℥j
Acid. carbol. liq., ... ♏v. M.

The new salt, *quinina bimuriatica carbamidata*, is highly recommended, being very soluble, for hypodermic use.

The following formula, known as "Warburg's Tincture," has during the last few years gained considerable reputation in the various forms of malarial fevers:—

℞. Rad. rhei, P. aloe soc. and Rad. angelica officinalis, ... āā . . . ℥iv
Rad. helenii, Crocus Hispan., Sem. fœniculi, and Cretæ preparat., . . . āā . . . ℥ij
Rad. gentian, Rad. zedoar, P. cubeb, G. myrrh, G. camphor, and Boletus Laricis . . . . . āā . . . ℥j
Confect. damocratis,* . . . . . ℥ss iv
Quininæ sulph., ... ℥ lxxxij
Spts. vini rect., ... Ō xx
Aquæ puræ, ... O xij.

Macerate in a water bath twelve hours, express, and filter. M.

Each half ounce contains quininæ sulphas, gr. vijss. If the stomach is too irritable to retain the tincture, the tincture may be evaporated to dryness and administered in *capsules*, each containing the equivalent of either one or two drachms.

For the *gastro-enteric* variety, Prof. Da Costa suggests—

℞. Morph. sulph., ... gr. ½
Pulv. camph., ... gr. j
Mass. hydrarg., ... gr. ij
Pulv. capisici, ... gr. ss. M.

In pills every half hour until the character of the stool is changed.

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* Formula of *Confectio damocratis*:—

Cinnamon, ... xiv gm.
Myrrh, ... xj gm.
White agaric, Spikenard, Ginger, Spanish saffron, Treacle, Mustard seed, Frankincense, and Chian Turpentine, ... āā . . . . x gm.
Camel's hay, Costus arabacus, Zeodary, Indian leaf, Mace, French lavender, Long pepper, Seeds of harwort, Juice of rape cistus, Strained storax, Opponex, Strained galbanum, Balsam of Gilead, Oil of nutmeg, Russian castor, . . . āā . . . . viij gm.
Water germunder, Balsam tree fruit, Cubeb, White pepper, Seeds of carrot of Crete, Poley mont, Strained bdellium, ... āā . . . . vij gm.
Gentian root, Celtic hard, Leaves of Dittany of Crete, Red rose, Seeds of Macedonium, Parsley, Sweet-fennel seeds, Seeds of lesser cardamon, Gum arabic, Opium, ... āā . . . . v gm.
Sweet flag, Wild valerian, Anise seed, Sagapernum, ... āā . . . . iij gm.
Spigrul, St John's wort, Juice of acacia, Catechu, Dried bellies of skunk, ... āā . . . . ijss gm.
Clarified honey, ... cmxv gm.

The roots to be finely powdered and the whole mixed thoroughly.

For the *thoracic* variety, dry or wet cups and *ammonii carbonas*, *caffeinæ citrat.*, and hypodermic injections *strychninæ sulphas.*

For the *cerebral* variety, venesection, or cups or leeches to the neck, cold to the head, prompt purgation, and action on the kidneys and skin.

For the *algid* variety *warmth* to the surface, hypodermic use of *morphina* and *atropina*, and the free use of *ammonii carbonas* and *alcoholic stimulants.*

For the *hemorrhagic* variety, purgatives, *morphina* hypodermically, and either *acidum sulphurici dil.*, *acidum gallic*, *Monsel's solution*, or *terebinthina*, for the hemorrhages.

The following is highly spoken of for hemorrhages:—

℞. Ext. ergotæ fld., ... ℥ ss
Acid. sulph. dil., ... f ℥ jss
Acid. gallic, ... ℥ j
Syr. zingib., ... f ℥ iij
Aquæ, q. s., ... ad . . . . f ℥ iij. M.

Sig.—Dessertspoonful every four hours, well diluted.

After the paroxysms are controlled, a long course of *ferrum* and *arsenicum*, with *quinina* on the septenary days.

YELLOW FEVER.

Synonyms. Yellow Jack; bilious malignant fever; typhus icterode; Mediterranean fever; sailors' fever; black vomit.

Definition. An acute, infectious, paroxysmal disease, of *three stages*, the *febrile*, the *remission*, and the *collapse;* characterized by violent fever, yellowness of the surface, and "black or coffee-ground vomit." Tendency fatal; one attack confers immunity from a second. Not contagious.

Cause. A specific poison, existing only with a high temperature and destroyed by frost. *Not due to the malarial poison.* Usually seen during the months of June, July, August, and September.

The true home of yellow fever is in the tropics.

Guiteras mentions three areas of infection: 1. The focal zone in which the disease is never absent, including Havana, Vera Cruz, Rio, and other Spanish-American ports. 2. Peri-focal zone or regions of periodic epidemics, including the ports of the tropical Atlantic in

America and Africa. 3. The zone of accidental epidemics, between the parallels of 45° north and 35° south latitude.

Epidemics are due to the introduction of the specific germ, either from patients affected with the disease or through infected articles.

Neither age, sex, race, nor social condition has immunity. One attack protects the individual.

Pathological Anatomy. *Skin* lemon or greenish-yellow color, due to dissolution of the red blood corpuscles; *heart* softened by granular degeneration; *stomach*, veins deeply engorged, the mucous membrane softened, and containing more or less "coffee-ground" matter, which consists of blood corpuscles deprived of their hæmoglobin, white corpuscles, epithelial cells, and *débris*. *Intestines* much the same as the stomach; *liver*, yellow color and a fatty degeneration of the hepatic cells; *kidneys*, granular degeneration of the epithelium of the tubules. The spleen presents a singular lack of pathological change.

Symptoms. The *incubation* lasts from twenty-four hours to six and exceptionally ten days. The more severe the epidemic the shorter the period of incubation.

First stage, the febrile, beginning either with the prodromata of *malaise*, headache and anorexia, or suddenly with a *chill*, high *fever*, in a few hours reaching 104° to 106° F., rapid *pulse*, 90–100 beats, *brilliant eye*, flushed countenance, coated tongue, *irritability* of the *stomach*, and severe *neuralgic pains* in the head, limbs, epigastrium, back, and large joints. The patients are restless and anxious, with a feeling of general prostration. In severe attacks *delirium* is frequent. The *urine* is scanty, acid, high colored, and contains *albumin*. A peculiar and characteristic odor is emitted from the patient. Duration of the first stage from thirty-six hours to three or four days.

Second stage, the remission, when the temperature declines to 100° or 99° F., and all the distressing symptoms abate or subside, and with some critical evacuation, convalescence occurs, or, more commonly, after from a few hours to one to four days, the—

Third stage, the stage of collapse, or the period of secondary fever, is ushered in by a return of all the symptoms of the first stage in an exaggerated form, followed by *yellowness* of the skin, passing to a deep mahogany color, *black vomit*, and *hemorrhages* from other parts, *feeble pulse, cold surface, irregular respiration*, and *death* from *exhaustion*, the mind remaining clear until the end.

The above symptoms represent a *sthenic* case; other varieties are the *algid*, *hemorrhagic*, and *typhus*.

Duration. Depends upon the variety; from a few hours to a few days. Rarely continues longer than one week.

Diagnosis. *Pernicious fever*, hemorrhagic variety, is apt to be mistaken for yellow fever. Yellow fever is a disease of *one* paroxysm, and *one* remission, *epidemic*, with albuminuria and black vomit. Pernicious fever has more than one paroxysm, not epidemic, rarely black vomit or albumin in urine. A valuable diagnostic point from malarial fevers is that quinine has no similar influence over yellow fever.

Prognosis. One in four perish. Short cases unfavorable, as are the hemorrhagic and algid varieties.

Treatment. *No specific:* a "self-limited" disease. The indications are to keep the patient quiet in bed, and treat the symptoms as they arise, and to nourish the patient. Good nursing, ventilation, *early emesis* and *purgation*, with *diaphoretics* and *diuretics*, are apparently beneficial. Large doses of *quinina*, early in the attack, for high temperature, by hypodermic method. For the irritable stomach, *ice* slowly dissolved in the mouth and *acidum carbolicum*, gr. ¼ in *aqua menthæ pip.*, every two hours, alternated with *liquor calcis* and milk, each an ounce, or—

℞. Hydrargyri chlor. mite, ... gr. $\frac{1}{12}$
Morphinæ sulph., ... gr. $\frac{1}{24}$.
Every two hours until nausea controlled.

For the black vomit and hemorrhages, either *liquor ferri subsulphatis* or *plumbi acetas*. The pains, restlessness, or delirium are best controlled by the hypodermic use of *morphina* or *atropina*. Free stimulation from the onset is essential.

When an epidemic of yellow fever breaks out all persons, whose duty does not keep them with the sick, should leave the infected district at once. "The cardinal principles involved in prophylaxis during an epidemic are summed up in the oft quoted words, 'Isolation, disinfection, and depopulation.'"

ERUPTIVE FEVERS.

As a group, the eruptive or exanthematous fevers have many features in common. All have a period of incubation, are characterized

by a fever of more or less intensity preceding the eruption, by an eruption which is peculiar to each, occurring most commonly in childhood, rarely attacking the same person twice, very prone to occasion serious sequelæ, and are contagious. Their origin is as yet undetermined.

SCARLET FEVER.

Synonym. Scarlatina, from the (old) Italian scarlattina, scarlatto (red).

Definition. An acute, self-limited, contagious, *infectious* disease, usually of childhood; characterized by high temperature, rapid pulse, a diffused scarlet eruption, terminating with desquamation, inflammation of the mouth and throat, and frequently more or less grave nervous phenomena. Serious sequelæ frequently follow an attack. One attack confers immunity from the disease.

Pathological Anatomy. An acute inflammation of the skin, with exudation—a true *Dermatitis*. A *granular* change in all the glandular structures, most marked in the Peyerian glands, although also occurring in the stomach and kidneys. Streptococci are usually found in abundance in the glands and areas of suppuration.

Cause. A specific poison, maintaining its vitality for a long time. Highly *contagious*, the contagion residing chiefly in the desquamated epidermis. Klebs' micrococci, the "monas scarlatinosum," may prove to be the poison. *Incubation* short, one to seven days.

Varieties. *Scarlatina simplex*, *scarlatina anginosa*, and *scarlatina maligna*.

Symptoms. A mild case is a very trivial affection, but in its severest form there are few diseases more malignant.

Onset sudden with a decided *chill* and *vomiting* (in infants, convulsions), pain in throat followed by *high fever*, soon reaching 105°; a *rapid pulse*, 110 to 140, being frequent. At the end of twenty-four hours a *bright scarlet rash* appears on the neck and chest, spreading over the entire body within a few hours; the eruption is not raised, there is no intervening healthy skin, and scattered irregularly are points of a darker hue. With the appearance of the eruption occurs *burning heat of surface*, *pain in the throat*, and *difficulty in deglutition*, the throat on inspection presenting the appearance of a *catarrhal* inflammation. *Tongue* at first furred, later red, with prominent

papillæ—the "strawberry tongue." There also occurs *headache*, *great restlessness*, and in severe cases *delirium*. *Diarrhœa* quite common.

On the fourth or fifth day the fever declines by *lysis*, the eruption fading, and on the sixth or eighth day *desquamation* begins, continuing for ten days, two weeks, or longer, the *convalescence* being slow, the patient *emaciated* and *pale*.

Scarlatina anginosa are cases like the above with the addition of great inflammation and swelling of the *pharynx*, *nose*, *palate*, *tonsils*, and neighboring *glands*, the swollen glands pressing upon the surrounding parts, causing *difficulty of breathing and of deglutition*.

Scarlatina maligna are cases with decided *nervous* phenomena, to wit: *convulsions*, *delirium* and *muscular twitching*, the *temperature* reaching 107° to 110°, the *pulse rapid*, *feeble*, and *irregular*, the *eruption* delayed, of a purplish color, and in *patches*.

Complications. Three conditions are always to be looked for in all cases of scarlet fever; *otitis*, affections of the *joints* and *acute nephritis*, each adding to the gravity of the attack.

The association of *diphtheria* with scarlet fever adds to the severity of the attack. The engrafting of these two diseases on the same individual is not an infrequent occurrence.

Sequelæ. Chronic sore throat; conjunctivitis; otorrhœa; chronic diarrhœa; subacute rheumatism; chorea; endocarditis; pericarditis; pleuritis; acute Bright's disease, and cutaneous dropsy.

Diagnosis. A typical case should cause no difficulty; the high fever, rapid pulse, sore throat, and early scarlet eruption, followed by desquamation, should leave no doubt.

Measles: the above symptoms are absent, and *catarrhal* symptoms present, the later appearance of the eruption and the difference in its character.

Smallpox: eruption on the third day in spots, changing to pustules with secondary fever.

Dengue or break-bone fever: absence of the above typical symptoms, and presence of severe *pains in the bones*.

Diphtheria: gradual invasion, great prostration, and no eruption, but the frequent complication of scarlatina and diphtheria must be remembered.

Meningitis may be suspected from the symptoms of *scarlatina maligna:* the epidemic influence, eruption, and rapid pulse are points of difference.

Prognosis. Depends upon the character of the attack and the association of complications. Acute nephritis, endo- and pericarditis, and pleuritis add to the gravity. The prognosis is more grave, however, from the association of diphtheria, the inflamed naso-pharynx presenting fertile soil for the ravages of that grave malady. Never can be positive of the result. Mortality ranges from ten to twenty-five per cent.

Treatment. As with other eruptive fevers, so with scarlatina, there are no specific remedies by means of which it can be arrested or controlled. Symptomatic treatment judiciously applied, however, may afford relief and diminish the fatality.

The indications are for rest in bed, good ventilation, isolation, disinfection, cooling drinks, action upon the skin, and light nourishment.

For a case of scarlatina simplex small doses of *hydrargyri chloridi mite*, *sodii bicarbonatis*, and *pulvis ipecac* every two or three hours until thorough movement of the bowels occur, will favorably influence the fever and rapid pulse in mild cases.

For cases with high *fever* and *rapidity of pulse*, *aconitum*, *digitalis*, *quinina*, or *antifebrin*, gr. j–ij, every couple of hours, or *acetanilidum* gr. j–ij–iv, every two or three hours, cool sponging, cold bath, douche, or pack.

If the surface be pale, the circulation feeble, and the eruption tardy in appearing, benefit will follow the administration of *tinctura digitalis* or *tinctura belladonnæ*, gtt. j–x, according to age.

With the appearance of the *eruption* anoint the entire body, save the head, with *vaseline* night and morning. *Acidum carbolicum*, gr. v, may be added to the ounce of vaseline. The inunction of vaseline or other fat acts beneficially in many ways. It reduces the fever by its soothing the cutaneous burning and irritation; later on when desquamation occurs it limits the source of further infection by preventing the diffusion of the otherwise dry scales in the air, and finally it protects the surface from the influences of sudden changes of temperature, thus to a great extent avoiding the danger of nephritis.

For *scarlatina anginosa*, internal use of—

℞. Tinctura ferri chlor., ... f℥ij
Glycerinæ, ... f℥j
Aquæ, ... q. s. ad. f℥ij. M.

Sig.—One half to one teaspoonful every two hours, undiluted, according to age.

Externally, ice or cold compresses, unless they cause chilliness, if so, heat. Astringent gargles and small pellets of ice dissolved in the mouth are of use. The throat and nasal cavities are kept clean and the breathing relieved by the use of Dobell's solution used with a hand atomizer every hour. The formula is :—

℞. Acid. carbolici, ... ℥iss
Sodii biboracis,
Sodii bicarb., ... āā ℥ij
Glycerini, ... ℥ij
Aquæ, ... q.s. ad. Oij. M.

The use of this solution proves grateful to the patient, relieving the breathing through the nose by loosening the tenacious secretions. An excellent gargle for those old enough to properly use one is :—

℞. Thymol, ... gr. iv
Glycerini, ... f℥j
Aq. dest., ... f℥j.
Sig.—A throat wash. If necessary dilute further. M.

For *scarlatina maligna*, in addition to *ferrum* and *quinina*, the chief reliance must be on *alcoholic stimulants*, guiding the amount by their effects. In children, wine-whey, milk-punch, and egg-nog are eligible for the administration of stimulants and nourishment.

Convulsions, or only great restlessness and muscular twitchings, are the result of the high grade of fever, and call for prompt treatment. My experience in such cases is against the group of antipyretic drugs, as not meeting the indication promptly enough. The *cold wet pack* or the *cold bath* with cold affusion or the ice cap are the most efficient and rapid means of reducing the temperature and relieving the nervous disturbances.

Prof. Da Costa advocates the administration of *ammonii carbonas*, in small doses at frequent intervals, to prevent the liability of heart-clot, and for its salutary influence over the disease.

It is claimed that a characteristic micrococci is found in the blood, and that, consequently, the disease can be favorably influenced by *acidum carbolicum, thymol,* or *acidum boricum;* an eligible way of administering acidum carbolicum is the *syr. ammoniæ phenatis* (Déclat), f℥ss–f℥j, four to six times daily.

There can be no doubt but that the complications and sequelæ attending scarlet fever constitute the principal dangers of the disease.

If *diphtheria* develop, the combination of *ferrum* and *hydrargyri chloridum corrosivum* with free *alcoholic stimulation* are the indications.

Acute nephritis is so commonly associated with, or follows the decline of, scarlatina that it is a prudent practice to examine the urine daily. If albumin appear add to the *ferrum*, *tinctura cantharidis* in minute doses, and dropsy and uræmic symptoms may be prevented. If, however, true scarlatinal nephritis does develop the following mixture of Hughes-Bennett, with saline purgatives and either a hot bath or the hot-air bath twice or oftener daily, will be followed with improvement:—

℞. Potassii acetat., ... ʒij
Spts. æther nitrosi, ... fʒss
Aquæ, ... q. s. ad., fʒij. M.
Sig.—Teaspoonful every two hours, well diluted.

Or—

℞. Hydrargyri chlor. mite,
Pulv. scillæ,
Pulv. digital., ... āā . . . gr. ¼–½–j.
M. et ft. pil., No. j.
Sig.—One such pill every three or four hours.

If uræmic convulsions occur use the hot-air bath, cupping over the kidneys, hypodermic injections of *pilocarpus*, the inhalation of *chloroformum*, or maybe the rectal use of *chloral hydrate* with or without *potassii bromidum*. Uræmic symptoms are often remarkably controlled by full doses of *sodii benzoas*.

For *scarlatinal rheumatism* the use of *ferrum* alternately with the following:—

℞. Ammonii salicyl., ... ʒiv–ʒij
Elix. simplicis, ... fʒss
Syr. simplicis, ... fʒj
Tinct. card. co., ... fʒss. M.
Sig.—Teaspoonful diluted four times daily.

For *inflammation of the middle ear* it is much better to puncture the drum membrane than to allow its ulceration: insufflations of *acidum boricum* and the internal use of *ammonii chloridum*.

For the various other *sequelæ*, the treatment is the same as if they occurred primarily, *plus* tonics.

The disease being *infectious*, every means should be taken to pre-

vent its spread, to wit: isolation, cleanliness, disinfection, and fumigation.

Small doses of *quinina*, in those exposed, is said to prevent or modify the severity of an attack, but no true prophylactic is known.

MEASLES.

Synonyms. Morbilli; rubeola.

Definition. An acute *epidemic* and *contagious* disease; characterized by catarrhal symptoms, referable to the naso-broncho-pulmonary mucous membrane, fever, and a crimson eruption which terminates by desquamation.

Cause. A specific poison, with a special susceptibility for childhood. Contagious by contact, and can be communicated by inoculation. One attack, as a rule, protects from a second. *Incubation*, ten days.

Pathological Anatomy. There are no special anatomical characters exclusive of the eruption, which is considered among the symptoms of the disease.

Symptoms. Onset gradual following a chill or with irregular *chills*, *fever*, the temperature rising to 101° or 102°, *muscular soreness*, *headache*, and intense *nasal*, *pharyngeal*, and *laryngeal catarrh*. The *eyes* are reddened and tears flow over upon the face. On the evening of the *second day* a *decided remission* takes place in the *fever*, the catarrh continuing; on the *fourth day* occurs an eruption of a *crimson* color on the face, soon spreading over the body, in the form of dots, slightly elevated, which coalesce into irregular circles or *crescents*, and with the appearance of the eruption the *fever returns*, the catarrh is aggravated, but the character of the *discharge*, instead of remaining clear and watery, becomes *turbid*, *thick*, and *yellowish*, and extends to the *bronchial* mucous membrane. About the *ninth day* (the fourth of the eruption), the eruption fades, the symptoms abate, and slight desquamation occurs. Some cough and catarrh may remain for a long period.

Black measles, sometimes called *hemorrhagic rubeola*, or camp measles, is a variety occurring in camps and jails, in which occur dangerous chest symptoms, and black spots or petechiæ from deteriorated blood, and severe prostration.

Rather common complications are *tonsillitis*, and *lobar* or *catarrhal pneumonia*.

Sequelæ. In those of *strumous diathesis*, scrofula or tuberculosis may develop.

Diagnosis. A typical case begins gradually, with chilliness, nasal catarrh, watery eye, and fever, which decline before the eruption, rising afterward, the eruption crescentic in shape and of a crimson color, followed by desquamation.

Scarlet fever: absence of catarrh, and earlier appearance and different character of the eruption, with high fever and rapid pulse.

Prognosis. As a rule, a perfect recovery. If tuberculosis develop, the prognosis is bad. Black measles, the majority succumb.

Treatment. *No specific.* Mild cases require no medicine, simply regulating the diet and bowels, and cool sponging; the indications are to render the patient as comfortable as possible, the disease pursuing a favorable course without therapeutical interference.

If the febrile reaction is high the following soon controls it:—

℞. Tinct. aconiti rad., ... ♏ss–j
Spts. ætheris nitrosi, ... ♏x–xv
Liquor. potassii citrat., ... ad ʒj. M.
Every two hours.

For the *pruritus* of the *eruption*, the local use of *oils* and *fats*. For *catarrhal symptoms*, inunction of the nose, neck, and chest with *camphorated oil* and small doses of *pulv. ipecac et opii* at bedtime; if the catarrh extends to the bronchial mucous membrane, *expectorants*.

During convalescence, for the strumous, protect from exposure, and administer *oleum morrhuæ* with *syr. ferri iodidi*. For *black measles*, bold stimulation, and *ferrum* and *quinina*.

RÖTHELN.

Synonyms. Rubella; epidemic roseola; German measles; French measles; false measles.

Definition. An acute, self-limited disease; characterized by mild fever, suffused eyes, cough and sore throat, enlargement of the lymphatic glands of the neck, and a rose-colored eruption, in patches of irregular size and shape, appearing on the first day.

Cause. Propagated by infection. That a peculiar germ exists is probable, but thus far it has not been isolated. *Incubation* from one to three weeks.

Symptoms. Onset sudden, with *mild fever*, *suffused eyes*, with little or no coryza, *sore throat*, and *enlargement* of the *cervical glands*, not limited to those about the angle of the jaw, as in scarlatina. Any time from the *first* to the *fourth* day appear *rose-colored spots*, size of a pin-head, slightly elevated, which coalescing, form irregular shaped and sized patches, with intervening healthy skin, fading on the upper part of the body while just appearing on the lower. Symptoms all terminate within a week by *lysis*, the patient showing no ill effects from the attack.

Diagnosis. From *scarlet fever*, by absence of high fever, the rapid pulse, the color and character of the eruption, and the sequelæ.

From *measles*, by absence of intense catarrhal symptoms, the late appearance of eruption, and its crescentic shape.

Prognosis. Most favorable.

Treatment. Mild laxatives and restricted diet. If *fever* high, saline mixture. For *itching* of skin, sponging with vinegar and water, or inunction with *vaseline*.

SMALLPOX.

Synonym. Variola.

Definition. An acute epidemic and *contagious* disease; characterized by severe lumbar pains, vomiting, and an initial fever, lasting from three to four days, followed by an eruption, at first *papular*, then *vesicular*, and afterward *pustular;* the development of the pustule being accompanied by a *secondary fever*, during the presence of which grave complications are prone to occur.

Causes. A specific poison whose nature is unknown, maintaining its contagious vitality for a long period. "There is no contagion so strong and sure as that of smallpox, and none that operates at so great a distance." (Watson.) There is no period, from the initial fever to the final desquamation, when the disease is not contagious, although the stage of suppuration is the most virulent. One attack, as a rule, protects from a second. *Vaccination* has a positive protective influence from the disease, an extensive observation having fully proven that in proportion to the efficiency of vaccination is

the rarity and mildness of variola. *Incubation*, fourteen to sixteen days.

Pathological Anatomy. A granular and fatty degeneration occurs in the liver, spleen, kidneys, and heart. The *pustules* are found in the larynx, trachea, bronchial tubes, and on the pleura.

Varieties. Discrete; confluent; malignant; varioloid or modified smallpox.

Symptoms. *Discrete form.* Onset sudden, with a *violent chill, vomiting,* and agonizing *pains in the back,* shooting down the limbs; *fever,* in short time rising to 103° or 104° F.; *full, strong,* and *rapid pulse,* ranging from 100 to 130; the *face red, eyes injected, intense headache* and *sleeplessness; prostration* great from the very onset. *Delirium* and *convulsions* occur at times. During the *third day* the characteristic eruption makes its appearance, first on the forehead and lips, consisting of *coarse red spots.* With the appearance of the eruption all the marked symptoms of the fever abate, the patient feeling quite comfortable. On the *fifth day* of the disease the spots become *papules;* on the *sixth day,* transformed into *vesicles,* which are soon *umbilicated;* on the *eighth day* the *vesicles* change to *pustules;* on the *ninth day* the pustules are entirely purulent, and each surrounded with a broad red band—the *halo* or *areola,* the face becoming swollen, and the features distorted; on the *eleventh day,* pus oozes from the pustules, and drying, forms the *scab,* or *crust,* which, on the *seventeenth* to *twenty-first day* drops off, leaving a red, glistening depression or *pit,* soon changing into a white cicatrix. With the formation of the pustules (*eighth day*) severe *rigors* and *fever* set in, and a characteristic *odor* is emitted, all the original symptoms returning. This *secondary fever,* the fever of suppuration, is the most critical period of the disease, and is generally attended with *violent delirium.* In favorable cases the secondary fever subsides after three or four days, and *convalescence* is established.

Confluent smallpox differs from the *discrete* in the greater severity of all the symptoms and the marked prostration of the patient, the *eruption* appearing during the *second day,* the *pustules* coalescing into large patches, causing great distortion of the features.

Malignant smallpox is characterized by the greater intensity and the irregularity of the symptoms, death resulting before the characteristic eruption appears, by convulsions or coma. In these cases *hemorrhages* are frequent and petechiæ are observed.

Varioloid, or modified smallpox, is the form modified by previous vaccination, or by a former attack of smallpox. Its course is shorter and milder than the other forms, the eruption appearing a day later, and is *not attended with secondary fever*.

During some epidemics two other eruptions are observed, appearing on the second day, one *petechial* in the form of a fine macular or spotted eruption on the abdomen and legs, "Simon's triangle"; the other an erythematous eruption on the sides and inner surface of the legs. Both disappear within forty-eight hours.

Complications. During the course of the *secondary fever* there is a great tendency to grave inflammations, such as *pleuritis*, *pneumonitis*, and *dysentery*. During *convalescence*, *boils* and *abscesses* on the skin are frequent.

Diagnosis. Cannot be confounded with any other disease if it has typical symptoms, such as chill, vomiting, pains in back and legs, high fever and pulse, all declining on *third day*, when the eruption appears, first spots, then papules, then vesicles, finally pustules, drying and forming crusts, and with the marked secondary fever.

Prognosis. Depends upon the *variety* of the attack, the *age* of the patient, and whether *vaccinated* or not. *Discrete*, mortality four per cent.; *confluent*, fifty per cent.; *malignant*, all perish. Under *five years* and over *forty years* of age, fifty per cent. die.

Treatment. If the patient is seen early vaccination should be performed at once; it may modify the attack. In the absence of a specific, the treatment is entirely symptomatic. Rest in bed, good ventilation, the temperature kept at 65° F., avoiding draughts. For the *initial fever*, full pulse and pains, *phenacetin*, gr. x, or *antifebrin*, gr. v, or *acetanilidum*, gr. v–x or what is better still, as more soluble, *antipyrine* gr. x, repeated p. r. n., are of great service, rendering the symptoms more endurable. Depressing doses must be avoided.

For the *headache*, ice bags to the head and a mustard sinapism to the nape of the neck.

For *sleeplessness* and *restlessness* or *early delirium*, full doses of *potassii bromidum*, or *chloral*.

For *secondary fever* the best remedy is *quinina*, gr. v, every three hours, and for *cerebral excitement* of this period, either full doses of *potassii bromidum*, by stomach, or the following by rectum :—

℞. Chloral, ... gr. xv-xx
Mucil. acacia, ... f ʒ ij
Aquæ, ... f ʒ ij. M.
p. r. n.

The secondary fever being pyæmic in character, the depression should be anticipated by large doses of *tinctura ferri chloridi* and judicious *stimulation*, brandy in tablespoonful doses being most efficient.

From the onset, milk, eggs, animal broth, oysters, and beef juice should be administered every *three hours*. *Ice* is always grateful and should be given freely, and if pustules appear in the mouth, ice should be held in the mouth as long as possible, and washes of *potassii chloras* or *acidum carbolicum* employed.

The disease being contagious, *isolation*, *ventilation*, *cleanliness*, and *disinfection* are imperative.

To prevent pitting, keep patient in a *dark room*, well ventilated. *Masks* of some unctuous material, thoroughly applied, to exclude the air, have a beneficial effect. Success is claimed by a number of observers from the use of *collodium* applied once or twice daily. *Cold water* dressings constantly to face and hands are beneficial, besides allaying heat, pain, and swelling. *Hot water* can be used if more grateful. The water dressings should be made antiseptic with sublimate solutions, 1 : 5000 or 1 : 10,000; *Ichthyol*, five or ten per cent. solution, painted over the pustules several times a day, is recommended to hasten the drying up, check extensive suppuration, and prevent pitting.

VACCINATION.

Definition. Inoculation with the matter of *vaccinia* or cow-pox —*bovine virus*. The person *properly* vaccinated is, as a rule, protected from an attack of smallpox, and especially from a severe or fatal attack.

Vaccination should be performed at least *twice* in every individual, during *infancy* and at *puberty*; and it is safer to have it again performed if special exposure be liable or has occurred.

In practicing vaccination the skin should be rapidly scraped until the true skin is reached and is ready to bleed, the lymph being then brushed over the abraded surface; or, instead, making three or four

horizontal and transverse cuts, about four lines long, and rub the virus over them; a little blood, but not much bleeding, should result.

Symptoms. If the vaccination "takes," on the *third day* a *papule* appears; on the *sixth day* a *vesicle* has formed, with a central depression; on the *eighth day* a *pustule*, fully formed and distended with lymph, with a reddish areola, which becomes very wide. The areola begins to fade on the *tenth day*, the pustule begins to dry, and by the *fourteenth day* a *brown mahogany scab* or *crust* has formed, which is detached about the *twenty-third day*. The *cicatrix* is circular, depressed, radiated, and foveated, becoming, after a time, paler than the surrounding integument.

During the course of a vaccination, more or less constitutional disturbance occurs, especially in children.

Eczematous and papular eruptions often develop in strumous children, for which the virus is unjustly held responsible.

VARICELLA.

Synonym. Chicken-pox.

Definition. A mild, slightly contagious, febrile affection; characterized by a moderate fever, and the appearance of a *vesicular* eruption, drying up and falling off in from three to five days.

Cause. A peculiar poison; attacking only children; occurring sporadically and as an epidemic.

Symptoms. Moderate *fever*, thirst, anorexia, and constipation, followed by the eruption of *vesicles*, which rapidly dry, and within the week drop off, leaving a slight *pit*. *Pustules* almost never occur. Symptoms are so slight, that, were it not for the vesicles, the affection would be often overlooked. The eruption appears on the *body* and *extremities*, very rarely on the forehead and in the mouth.

Prognosis. Most favorable.

Treatment. Entirely symptomatic. If vesicles on the face, efforts may be used to prevent pitting.

ERYSIPELAS.

Synonyms. Erysipelatous dermatitis; the rose; St. Anthony's fire.

Definition. An acute, specific, infectious disease; characterized by a fever of low type, and a peculiar inflammation of the skin,

generally of the neck and face. This inflammation exhibits a marked tendency to spread, to induce serous infiltration and suppuration of the areolar tissue, and to affect the lymphatic vessels and glands.

Cause. A specific virus; a micrococcus, the *Streptococcus erysipelasus*. *Feebly contagious.* One attack predisposes to another. The etiology of idiopathic (medical) and traumatic (surgical) erysipelas are identical. *Incubation*, from two to seven days.

Pathological Anatomy. Erysipelas is a simple inflammation—a dermatitis. The visceral changes, if any occur, are of a septic character. Infarcts occur in the lungs, spleen, and kidneys. Septic endocarditis and pericarditis and pleuritis are found post-mortem. Acute nephritis may occur.

Symptoms. Onset sudden; a *chill*, followed by *fever*, which soon reaches 104° or 105°, *frequent pulse*, 100 to 130, coated tongue, *nausea* and *vomiting*, severe pains in the limbs, with epistaxis in adults and convulsions in children, and often *diarrhœa*.

Delirium is frequent, and in those of alcoholic habits it resembles delirium tremens.

The *eruption* soon follows the chill, beginning in *red spots*, which rapidly coalesce and spread; a sense of *heat*, *tension*, and *tingling* is caused by the *great œdema*, which presents a *tense*, *shiny* appearance, the swelling being so great at times as to close the eyes and distort the features. In many cases *small vesicles* develop, which may coalesce, forming *blebs*, of considerable size, containing a clear yellow serum. After five or six days the eruption begins to subside, the symptoms abate, the part affected remaining tender, and there occurs moderate desquamation.

During the height of the attack *albumin* appears in the urine so that the possibility of *uræmic* symptoms must be remembered.

When extensive *infiltration into the areolar tissue* occur, the swelling and tension become greater, and it is termed *phlegmonous erysipelas*.

When the *eruption spreads* to different portions of the body, it is termed *erysipelas ambulans*.

Complications. *Thrombosis* of the cerebral capillaries or sinuses, or as it is sometimes called, "erysipelas of the brain," is explained by the intimate anatomical connection of the facial vein with the pterygoid plexus and cavernous sinus.

Œdematous laryngitis, from extension to the larynx.

Pneumonia, pleurisy and meningitis are frequent complications.

Diagnosis. Not difficult. The fever, early spreading eruption, with burning, swelling, tension and tingling, and albuminous urine, separate it from the other *eruptive fevers* and *erythema*.

Prognosis. Usually favorable. Unfavorable if it attack drunkards; if it becomes gangrenous; if thrombosis of sinuses occur, or if it extends to the larynx.

The convalescence, even from the mildest attack, is slow, the patient continuing weak and anæmic for several weeks.

Treatment. Mildest cases only require a *laxative*, nourishing diet, and locally *vaseline* or *bismuth oleate*, to modify the heat and burning.

Prof. Da Costa strongly urges the use of *free purgation* before the use of the remedies usually *administered*.

According to Reynolds, *aconitum* will cut short an attack. He administers ♏½–j, every fifteen minutes for the first two hours; then in hourly doses, until the surface is moist and the temperature lowered. The author corroborates this plan, from a personal experience.

In severe cases, *tinctura ferri chlor.*, gtt. xx–xxx, every third hour, well diluted. Also *quinina* gr. ij, every third hour. *Ext. belladonnæ*, gr. ¼, added, with benefit. The diet from the onset should be of the most nourishing character, and administered at regular intervals. Dr. Waugh strongly lauds *extractum pilocarpi fluidum* in erysipelas.

Prof. Da Costa reports excellent results in cases with *rapid spreading* tendency, from the use of *pilocarpinæ hydrochloras*, gr. ⅙, hypodermically or *ext., pilocarpi fluidum*, gtt. xx–xl, every two hours. Good results are obtained in a fair number of cases from *potassii iodidum*.

Cerebral symptoms, *stimulants, opium and chloral*.

Extension to *throat, argenti nitras*, brushed over parts. If symptoms of œdema of the glottis develop, *tracheotomy* is indicated.

Locally, soothing applications are indicated, to wit: *Vaseline, ung. zinci oxidi, ol. olivæ cum glycerinæ, bismuth oleat.* or *ungt. hydrargyrum*. Excellent results are obtained by the use of equal parts of *ichthyol* and *lanoline*, applied on gauze; if the face be the seat of disease, covering the part with a mask of gauze spread with the above *unguentum*.

In the *phlegmonous* variety, *argenti nitras*, ℈j, *spts. ætheris nitrosi*, ℥ij, brushed over and beyond the affected part, with the internal use of large doses of *quinina*, *ferrum*, and *stimulants*.

DENGUE.

Synonyms. Break-bone fever; neuralgic fever; dandy fever. The word *dengue* is pronounced *dangay*.

Definition. An acute, epidemic, febrile disease, consisting of two paroxysms of fever with an intermission. The first paroxysm is characterized by high fever, distressing pains in the joints and muscles, and a peculiar eruption; the second paroxysm is characterized by a milder fever, an eruption of different character, attended with intense itching, by some recurrence of the joint pains, and by debility.

Cause. Unknown; but it is evident that a peculiar condition of the atmosphere has some influence in its development. *Incubation*, from two to six days.

Symptoms. Onset sudden—*fever*, 103° to 105°, intense *headache*, *burning pains in the temples*, *backache*, severe *aching* and *swelling of the joints* and *stiffness of muscles*, nausea, vomiting, constipation and the appearance of a *rash*, resembling scarlatina, from which the disease has been mistaken for scarlatinal rheumatism. After some hours to two or three days, a distinct *intermission* obtains, of one or two days' duration.

The onset of the second paroxysm is also sudden, but the symptoms are much less severe, although the patient is greatly *debilitated*; it is at this time that the characteristic eruption appears, being either *erythematous* or *rubeolous*, and attended with *intense itching*, remaining for about two days, when desquamation occurs and convalescence is established, but is prolonged by the great debility of the patient. Average duration of the disease eight days. *Relapses are common.*

Diagnosis. Most apt to be mistaken for *acute articular rheumatism*, especially during the *first paroxysm*, but the course of the disease and the epidemic influence should prevent such an error.

The eruption might mislead for *scarlet fever* or *measles*, were it not for the severe joint and muscular pains.

On the first appearance of the pandemic of La Grippe in 1889 the

similarity of the early myalgic symptoms with those of dengue was particularly noticable.

Prognosis. Favorable.

Treatment. *No specific.* Entirely symptomatic.

At the onset, free *purgation and diaphoresis.*

For the *fever, quinina*, gr. v every five hours, or *antipyrine*, gr.x–xx, repeated p. r. n.

For the *pains, opium* or *phenacetine.*

For the *itching*, lotion of *acidum carbolicum.*

DISEASES OF THE MOUTH.

CATARRHAL STOMATITIS.

Synonyms. Simple stomatitis; erythematous stomatitis; catarrh of the mouth.

Definition. An acute catarrhal inflammation of the whole or a portion of the mucous membrane of the mouth and tongue, characterized by pain, redness, swelling, and disordered secretion. Most common in infants and children. Chronic stomatitis occurs mostly in adults, the result of alcoholic or tobacco excesses.

Causes. Introduction of hot and irritating substances into the mouth; difficult dentition; secondary to disorders of the stomach, to measles, scarlet fever, and variola.

Pathological Anatomy. The buccal mucous membrane and tongue have a dark red appearance, are much swollen, the tongue often appearing as if too broad to lie between the teeth, the sides showing the impressions of the teeth; the secretions are at first lessened, afterward increased, a turbid mucus covering the cheeks, gums, and tongue, thus giving a *coated tongue.*

Symptoms. Oral catarrh begins with the ordinary signs of inflammation, *burning, smarting pain*, and *tension* in the mouth, in those old enough to describe their suffering. Very young children *refuse to nurse* or allow their mouth to be touched, taking hold of the

nipple, giving one or two pulls and suddenly letting go and beginning to cry, have *slight fever*, disordered stomach, are *fretful* and *sleepless*, *craving cooling drinks*.

The sense of taste is blunted, and there is usually an unpleasant bitter taste in the mouth.

If the catarrh becomes *chronic*, the breath has a fetid odor and the tongue is coated in the morning, the taste is disordered, and there is generally more or less depression of spirits.

Diagnosis. If the buccal cavity be examined, the condition is readily discerned.

Prognosis. Recovery is the rule for the acute variety.

The *chronic* cases are usually due to the use of tobacco or alcohol, and are only modified by the absolute withdrawal of the exciting cause.

Treatment. The most important point in the treatment is the removal of the exciting cause, attention to the secretions and diet, and gently mopping out the mouth at frequent intervals with a soft wad of absorbent cotton and cold or iced water, or locally—

℞. Sodii boratis, ... ℥iss
Aquæ destillat., ... f℥iss
Mel. rosæ, ... f℥iss.

In severe or aggravated cases a dilute solution, *argentum nitras* (gr. ij–v, aquæ f℥j) should be applied.

APHTHOUS STOMATITIS.

Synonyms. Follicular stomatitis; vesicular stomatitis; croupous stomatitis.

Definition. An acute inflammation of the follicles and mucous membrane of the mouth and tongue, characterized by a *fibrinous* or *croupous exudation;* the exudation first appearing in *isolated spots* (*aphthæ discretæ*), afterward *coalescing*, and forming large and irregular-sized patches (*aphthæ confluens*), which rupture, leaving an ulcer, which slowly heals.

Causes. A disease principally of childhood. Difficult dentition; disorders of digestion; uncleanliness, such as neglect to rinse the child's mouth after nursing; a symptom of measles and diseases of the buccal cavity.

Pathological Anatomy. Begins as a small, whitish papulo-vesicular elevation, semi-transparent, hard and tender, with a distinct red zone about their base; there may be as few as six or as many as twenty; they may remain isolated (*aphthæ discrete*) or coalesce (*aphthæ confluens*); they are regarded as either a peculiar deposit or a local croupous exudation. After a day or two they rupture, leaving an irregular white or grayish ulcer, which slowly heals. The seat of the affection is the internal surface of the lips and cheeks, the gums, tongue, and roof of the mouth.

Symptoms. The condition begins with redness of the mucous membrane of the mouth, followed rapidly by the spots or vesicles on the inner surfaces of the lips, the edges of the tongue, and the cheeks; in infants, the *pain* is so severe that the child refuses to nurse; in older children, *pain* from *talking*, *mastication*, and *deglutition*; *salivation* is marked, the saliva dribbling from the mouth. There is slight *feverishness*, *fretfulness*, and *sleeplessness*. *Digestion* is impaired, and quite commonly *diarrhœa* occurs. A *disagreeable*, *penetrating odor* escapes from the buccal cavity.

Diagnosis. Impossible to confound with any other affection if the buccal cavity is examined.

Prognosis. Always favorable.

Treatment. Removal of the exciting cause. Attention to the *dietary* and the secretions is paramount. If constipation occur the use of a few powders of *hydrargyri chloridum mite*, containing gr. $\frac{1}{12}$, adding a small amount of *sodii bicarbonas* or small doses of *pepsinum*. Protracted cases require tonic doses of *quininæ sulphas*.

Locally, good results are obtained from strong solutions of *potassii chloras*, *infusum coptis*, or touching the ulcers with *argenti nitras*.

ULCERATIVE STOMATITIS.

Synonyms. Diphtheritic stomatitis; gingivitis ulcerosa.

Definition. An acute diphtheritic inflammation of the mucous membrane of the mouth, continuing until extensive and unhealthy *ulcerations* occur. It usually begins on the margin of the *lower gums*, and often extends to the lips, cheeks, or tongue.

Causes. Usually seen in children only. Most frequently in the

families of the poor, the result of unfavorable hygienic surroundings, personal uncleanliness, and poor food. Often seen in those reduced by severe acute disease. Perhaps contagious, as *epidemics* are not rare. Prevails in institutions, jails, and camps, in which the sanitary conditions are defective.

Pathological Anatomy. The *gums* first appear congested, swollen, bleeding readily, and separated from the teeth; soon a firmly adherent deposit in the form of patches appears, at first whitish, speedily becoming gray or even black, from disintegration, becoming soft and pulpy, the separated slough leaving irregular-shaped *ulcers*, with raised margins, from œdema of the surrounding tissue. They are not deep, and their surface is covered with a pulpy, yellowish substance. The morbid process usually extends to the inner side of the lips, cheeks, and to the tongue.

Symptoms. Begins with swelling of the mucous membrane about the base of the teeth, followed with *pain* aggravated by *mastication* or *deglutition;* food and drink must be of the blandest character. The *mouth* is *hot*, the *saliva dribbles* away, mixed with *blood* and shreds of *pulpy matter*, the *breath is fetid*, the appetite, digestion, and bowels disordered. The patient is feverish, fretful and sleepless.

There is always enlargement and tenderness of the submaxillary glands.

The affection is often associated with *entero-colitis*.

Diagnosis. Apt to be confounded with gangrenous stomatitis, than which, however, there are less constitutional symptoms and a slower course of the malady.

Prognosis. Favorable. If promptly and properly treated, the ulcerated surface rapidly heals, although quite commonly some teeth are lost.

Treatment. The etiology of the affection must be borne in mind and remedied. Strict attention to the diet, to the secretions, and absolute cleanliness.

Internally, the prompt use of *potassii chloras*, gr. j-v, frequently repeated, often acts like a specific. The general health frequently calls for *quinina*, *ferrum*, and *stimulants*.

Locally, a strong solution of *potassii chloras*, or keeping the ulcer covered with *bismuth*, or frequent applications of *alumen exsiccatum*

are valuable. Cases which resist these remedies should have applied the following combination, proposed by the late Dr. Dewees:—

℞. Cupri sulphat., ... gr. x
Pulv. cinchonæ opt., ... ʒij
Pulv. g. arab., ... ʒj
Mel. commun., ... fʒij
Aquæ font., ... fʒiij. M.
Ft. sol.

Sig.—The ulceration to be touched twice daily, with the point of a camel's-hair pencil.

If a spreading tendency develop, the application of *argenti nitras dilutus*, or a diluted solution of *acidum nitricum* is indicated.

THRUSH.

Synonyms. Parasitic stomatitis; muguet; sprue; white mouth.

Definition. An inflammation of the mucous membrane of the mouth, associated with or caused by the growth of a *parasitic plant*, the *oïdium albicans;* characterized by pain, disorders of digestion and of the bowels.

Causes. The development of the thrush-fungus, *oïdium albicans*, is promoted by all those conditions designated as unhygienic, by debilitated conditions of the general system, and by neglect to thoroughly rinse the mouth after nursing or bottle-feeding. It is claimed that a catarrhal stomatitis is the soil upon which the fungus develops.

The age is considered a predisposing cause, seldom being seen after two years of age. In adults, only toward the last stages of cancer or consumption.

Pathological Anatomy. The mucous membrane of the mouth presents a dark red appearance in isolated patches, on which *whitish points* appear, which rapidly coalesce into large areas. They closely resemble curdled milk, from their soft consistency. These whitish points consist of epithelium and fat, in which are embedded the sporules and filaments of the fungus.

The deposit first appears about the angles of the mouth, soon extending to all parts of the cavity, often to the pharynx and œsophagus.

The mouth is usually swollen and tender, the breath often fetid.

Symptoms. *Pain*, aggravated by *nursing* or *mastication*. The

lips are swollen, the *saliva* is *increased*, the *breath hot* and somewhat fetid. There is usually increased temperature. *Diarrhœa* is frequent, the stools green and sour, causing an erythema of the buttocks.

Diagnosis. The curd-like appearance of the deposit, showing the presence of the fungus upon microscopical examination, will prevent error. Should not be confounded with aphthous stomatitis, in which *ulcers*, preceded by the formation of vesicles, are perfectly distinctive.

Prognosis. Favorable, unless occurs toward the termination of exhausting diseases.

Treatment. Absolute cleanliness of the mouth is all important.

Internally, remedies should be directed to the removal of the disorders of the gastro-intestinal tract.

Prompt relief has followed the use of *sodii hyposulphitis saturat. solut.*, gtts. iij–x, every two or three hours, and the local application of the same solution.

Locally, solutions of *sodii boras* often answer every indication, the best vehicle being *glycerinum*, and not *mel* or *saccharum*, a good formula being—

℞. Sodii boratis, ... ℥j
Glycerini, ... f℥ij
Aquæ, ... ℥vj. M.

Sig.—Thoroughly applied four or five times daily, and continued for a week after the disappearance of the affection.

GLOSSITIS.

Definition. An inflammation of the parenchyma of the tongue; characterized by great swelling of the organ, with difficult mastication, deglutition, and vocalization.

The affection may be either *acute* or *chronic*.

Causes. The *acute variety* is usually the result of some direct irritation to the tongue, such as direct injury, contact of boiling liquids, the action of acrid or corrosive substances, or the sting of the tongue by an insect, such as the bee or wasp.

The *chronic variety* is generally circumscribed; it may follow the acute; be due to the sharp edges of the teeth, or the use of a tobacco pipe.

Pathological Anatomy. *Acute glossitis* begins with intense hyperæmia, redness and swelling of the organ; the size often be-

comes so great that the tongue is too large for the mouth, and thus protrudes between the teeth; its surface is covered with a thick secretion, and it becomes of a pale or grayish color. The swelling may rapidly decline, or abscesses may form, which leave a more or less decided depressed cicatrix.

Chronic glossitis occurs usually along the edges of the organ, the cicatricial changes being in circumscribed hard spots. If the entire tongue is affected with chronic inflammation, the action is superficial, and has been termed "psoriasis of the mouth."

Symptoms. *Acute glossitis* begins rather abruptly with *fever*, increased *pulse*, *restlessness*, *anxiety*, *enlargement* of the *tongue*, a sensation of *heat* in the mouth, with *pain*, and *increased* flow of *saliva*. *Mastication* and *deglutition* become difficult if not impossible, the *voice muffled* and *dyspnœa* decided. The *glands* at the angles of the jaw are *enlarged*, which, in turn, compress the vessels of the neck.

When *suppuration* supervenes, the constitutional symptoms become severe and the oral symptoms are intensified. *Death* has occurred from suffocation in severe cases.

Chronic glossitis presents *pain* as the chief symptom, aggravated by movements of the organ.

Diagnosis. The rapid course of *acute glossitis* should prevent its being mistaken for any other affection.

Chronic glossitis, if severe, might be mistaken for *cancer* of the tongue, although the slow and mild progress of the former contrasts strongly with the rapid, severe, and painful course of the latter, with its marked constitutional symptoms.

Prognosis. *Acute glossitis* usually terminates in recovery within a week, although the danger of suffocation must always be remembered.

Chronic glossitis is an incurable malady in the majority of instances.

Treatment. For *acute glossitis* prompt measures are demanded.

For the *fever* and *rapid pulse*, *tinctura aconiti*, gtt. j to iij every half hour or hour until its physiological effects are produced.

For the *enlargement* of the organ, either *ice* constantly applied internally and externally, at the angles of the jaw, or the persistent use of *hot water* held in the mouth and externally; if prompt relief does not follow these measures, or if the case is an aggravated one, the prompt *deep scarification* of the tongue must be resorted to.

If *abscesses* form, promptly open them and administer *quinina*.

If *suffocation* appear imminent, *tracheotomy* must be performed.

For *chronic glossitis*, the removal of the exciting cause and the local use of *argenti nitras* to the ulcerated edges.

"For psoriasis of the tongue," the local use of *argentum* or *acidum carbolicum*.

The general health must always receive due attention.

GANGRENOUS STOMATITIS.

Synonyms. Cancrum oris; noma; water-cancer.

Definition. An acute, rapidly progressive gangrenous ulceration of the mouth, leading to extensive sloughing and destruction of the affected tissues.

Causes. It is probable that gangrenous stomatitis is due to some parasitic micro-organism, but its character is as yet unknown. It attacks feeble and sickly children by preference; now and then observed in adults.

It is seen as a primary affection and as a sequelæ to measles, scarlet fever, typhoid and typhus fevers, and pneumonia.

Pathological Anatomy. The process is essentially a rapidly progressive moist gangrene.

Symptoms. Noma usually begins insidiously by the destructive process developing upon an ulcerative stomatitis, or the appearance of a sloughing ulcer on the gums or the inside of the cheek of an apparently healthy mucous membrane. Often the *gangrenous odor* is the first symptom noted. The cheek *swells*, becomes *œdematous*, and the skin waxy looking; within a day or two the process may spread, involving the whole side of the face, and as the ulcer becomes deeper and approaches in its progress the integument, the skin becomes red, blue, purple, black, or a combination of these shades, followed by the development of a *bulla* filled with ichorous fluid, the skin softening and breaking down.

The constitutional reaction is very severe; *pulse rapid* and *feeble; temperature* 102°–104° F.; extreme prostration; *pain* but little complained of, but the *odor* fills the house; *diarrhœa* is common, hemorrhages from the mouth rare. Death usually occurs in a week to ten days, the patient often presenting a frightful picture. Very rarely indeed recovery occurs.

Diagnosis. No other disease or condition can be confounded with gangrenous stomatitis.

Prognosis. Nearly all cases die.

Treatment. There is but little to say about the treatment of noma. Destruction of the ulcer by the use of *argentum nitras* in stick, fuming *acidum nitricum*, or the Paquelin cautery might be tried. Washes of antiseptic solutions, and the use of quantities of finely powdered *acidum boric* are useful. Keep up the strength of the patient with *ferrum*, *arsenicum*, *quinina*, and *stimulants*.

DISEASES OF THE STOMACH.

ACUTE GASTRIC CATARRH.

Synonyms. Acute gastritis; gastric fever; bilious fever; acute indigestion; subacute gastritis.

Definition. An acute catarrhal inflammation of the mucous membrane of the stomach; characterized by feverishness, loss of appetite, nausea, with occasional vomiting, painful digestion, irregularity of the bowels, and in severe attacks, vertigo (*stomachic vertigo*).

Causes. Deficient quantity of or quality in the gastric juice. Errors in diet, insufficient mastication of food, swallowing liquids which are either too hot or too cold, and particularly the abuse of alcoholic liquors.

Often secondary to infectious diseases, such as scarlet fever, measles, smallpox, diphtheria, and typhoid fever. Occasionally the result of sudden changes of temperature.

Pathological Anatomy. The mucous membrane is irregularly congested and engorged, and covered with a grayish, semi-transparent and *tenacious mucus*, having an *alkaline* reaction. The *true gastric juice* is secreted in *lessened amount* or is *entirely suspended*.

Symptoms. At first, *loss of appetite*, at times *disgust for food*, heavily coated tongue, bad *taste* and *breath*, persistent *nausea*, and at times, *vomiting*, first of undigested food, then viscid mucus, acid and

bitter, and finally, bilious matter; moderate *irritative fever* is present, with *headache*, considerable *thirst*, and flashes of heat with sensations of burning in the palms of the hands and soles of the feet; *acid drinks* eagerly sought after; *digestion imperfect*, giving rise to *pain*, *tenderness*, *feeling of weight*, and *eructations*; bowels often loose, sometimes, however, constipated. *Vertigo* with *pain* in the *nucha*, is a prominent symptom in many cases, causing great anxiety and depression of spirits. The *urine* is scanty, containing *lithates* and pigment.

The symptoms are aggravated by errors in diet, and if saccharine or fatty articles are taken, *heartburn* occurs.

Toward the termination of an attack, *herpetic* eruptions appear about the mouth.

Diagnosis. Acute gastric catarrh with fever may be confounded with *remittent* and *typhoid fever* of the first week, but all doubts will disappear as these maladies develop.

The *vertigo* may be mistaken for *cerebral disease*, but the disappearance of this symptom when stomachic treatment is inaugurated removes all apprehension.

Prognosis. Favorable. Duration about a week; recovery slow, even under treatment, as far as perfect digestion is concerned.

Treatment. Give the stomach as complete a *rest* as possible, and as anorexia is a prominent symptom, the error should not be made of insisting upon the patient eating for a day or two at least.

If the stomach is overloaded, a rare incident, an *ipecac emetic*, or *apomorphine*, gr. $\frac{1}{6}$, by hypodermic injection, is indicated, or, if vomiting has begun, it may be encouraged by swallowing large draughts of *hot water*, which will act as a sedative if the stomach be empty.

The majority of cases do better by an active purgation with either *hydrargyri, chloridi mite*, gr. v–x, with *sodii bicarbonas*, gr. v, followed in six or eight hours with an ounce dose *magnesii sulphas*, or a full dose of Hunyadi-Janos water; or small doses every two hours of powders containing—

℞. Hydrarg. chlor. mite, ... gr. ¼–½
Sodii bicarb., ... gr. ij. M.

Every two hours, followed the second morning after the last powder with a saline.

After the stomach and bowels have been thoroughly cleansed the diet may be more liberal, and some one of the following drugs used :

tinctura nucis vomicis, gtt. v–x–xv, well diluted, every four hours, or *pepsinum* and *bismuth*, or *papoid*. Weak *alkaline mineral waters* or *liquor calcis*, should be freely used. After the acute symptoms have subsided—

℞. Strychninæ sulph., ... gr. $\frac{1}{60}$
Acid. hydrochlor. dil., ... gtt. x
Tinct. gent. co., ... f℥j. M.

Before meals, diluted, will improve the appetite and digestion.

ACUTE GASTRITIS.

Synonym. Toxic gastritis.

Definition. An acute and violent inflammation of the mucous, submucous, and muscular coats of the stomach, with loss of tissue; characterized by great pain, constant vomiting of blood-streaked or bloody mucus, whatever may be ingested, and symptoms of collapse.

Causes. Ingestion of irritant and corrosive poisons, such as the mineral acids, arsenic, corrosive sublimate, copper, and carbolic acid.

Pathological Anatomy. The mucous membrane is vividly red and injected, more marked at some portions than at others; it is soft and friable; erosions are irregularly scattered, and the submucous, muscular, and at times serous coats show decided destructive changes. The gastric tubules are destroyed in large numbers. In many cases the *oral* mucous membrane presents signs of severe inflammation.

Symptoms. Immediately or soon after swallowing the irritant, there ensues a deadly *nausea*, with rapid and *persistent vomiting;* first, of the contents of the stomach acted upon by the poison, afterward, shreds of mucous membrane and blood clots; there are also present great *anxiety* and *depression*, a *weak, rapid pulse, slow* and *shallow respiration, cold skin*, covered with a *cold sweat, intense burning heat* at the epigastrium, *thirst* with *burning* in the *fauces* and *gullet*, and *exhaustive purging; the features* are *more* or *less retracted* or *sunken;* these symptoms terminating in collapse and death, or slow convalescence and recovery with a crippled stomach.

A *diagnosis* of the character of the poison swallowed is often afforded by the *stain* of the lips, face, and mucous membrane, to wit: *sulphuric acid*, blackish eschar; *nitric acid*, yellowish eschar; *caustic*

potash, spreading widely and softening the tissues; *corrosive sublimate*, whitish or glazed; *carbolic acid*, white and corrugated.

Prognosis. Very grave. Many perish from shock, and the destruction of the mucous membrane of the stomach, which prevents nourishing. Early treatment when no perforation of the walls of the stomach has occurred and recovery is possible, the organ being ever after much weakened.

Treatment. *At once*, hypodermic injection of *morphina*, repeated at regular intervals.

Vomiting should be encouraged by the free use of *demulcents*.

If the case be seen within a short period of the swallowing of the poison, the proper antidote should be used, but if some hours have elapsed, it is useless. *Ice*, internally and externally, gives great relief. The stomach should be washed out with the stomach pump, thereby removing any remaining poison, while at the same time it acts as a sedative to the inflamed membrane. *Bismuthi subnitras*, grs. xx–xxx every hour or two, is beneficial.

Milk and *lime-water* is the only food that should be given by the stomach, *enemata* being used to support the system.

CHRONIC GASTRIC CATARRH.

Synonyms. Chronic gastritis; chronic dyspepsia; drunkards' dyspepsia.

Definition. A chronic catarrhal inflammation of the stomach, with thickening of the coats and atrophy of the gastric glands; characterized by tenderness over the epigastrium, impaired appetite, painful and imperfect digestion, thirst, and great depression of spirits or melancholia.

Causes. Repeated attacks of acute gastric catarrh; habitual and excessive use of spirituous liquors, tea, coffee, and the free use of ice-water during and between meals; improperly prepared and unsuitable food; irregularity of meals and imperfect mastication; excessive tobacco-chewing; malaria; disease of the heart, lungs, pleura, liver or kidneys, producing chronic congestion of the stomachic vessels; cancerous or other degenerative diseases of the stomach.

Pathological Anatomy. The mucous membrane is of a brownish or slate color, elevated into ridges from hypertrophy, the result of constant congestion; the peptic glands first increase in size, then un-

dergo granular change, atrophy of their cells resulting. The mucous membrane is covered with a thick, alkaline, tenacious mucus. Ewald describes the minute anatomy as that of a parenchymatous and interstitial inflammation, which may lead to such widespread degeneration of the glandular elements that ultimately scarcely a trace of secreting tissue remains. These changes may affect the entire organ or be limited to portions of the stomach.

Symptoms. The persistent and manifold symptoms of *indigestion*, varying somewhat with the extent of the mucous surface and secreting glands involved, are the first indications of the disease, such as *loss of appetite*, disagreeable feeling of *gnawing* and at times *fullness* in the stomach, *tenderness* at the epigastrium, but slightly influenced by eating, *prominence* of the epigastrium, from distention by decomposing gases, occasional *nausea* and *vomiting* after meals, of undigested food, or, when the stomach is empty, of colorless fluid. A colorless vomit joined to symptoms of long-continued indigestion is always very characteristic of chronic gastritis. Drunkards suffer from an early morning vomit consisting of glairy mucus and saliva swallowed during sleep, raised only after great retching. The *tongue* is usually heavily coated, although it may be clean; *thirst* is often constant, water and more frequently stimulants being craved; *burning* at the pit of the stomach and under the sternum (heartburn) is very common, the *bowels* are *constipated*, the *urine* high-colored and contains an excess of phosphates or urates, or exhibits crystals of oxalate of lime. The circulation is feeble, there is *depression of spirits* amounting in some instances to delusional melancholia; *sleeplessness* is persistent, and occasionally there are attacks of *vertigo* (stomachic vertigo), which greatly alarms the patient. All these symptoms result from either a deficient secretion of the gastric juice or from a lessened proportion of hydrochloric acid in the juice secreted, and also from the excessive mucus and from diminished peristalsis of the stomach, these morbid conditions favoring the fermentation and decomposition of the food. *Follicular pharyngitis* of an aggravated type adds to the general distress of the patient. The imperfect digestion causes more or less *loss of flesh*, the fat disappearing, the muscles relaxed and the skin dry, harsh, and of a dirty-pale color, and not infrequently eczema and other cutaneous diseases result.

Diagnosis. Chronic gastritis is associated with so many chronic diseases that a correct diagnosis is of great importance. Among the affections likely to lead to error in diagnosis are gastric ulcer, gastric

cancer, gastric dilatation, cerebral vertigo, cardiac disease, and disease of the kidneys and liver.

Prognosis. Complete recovery is hardly to be expected, but great amelioration of symptoms occur and with guarded diet and mode of life good health may be enjoyed for many years.

Treatment. The first indication is the correction of the *indigestion*, which is usually the most pronounced and distressing symptom; this is accomplished by carefully regulating the amount and character of the food used, avoiding fatty, saccharine, and starchy articles or highly seasoned food or stimulants. A milk diet is beneficial, to which may be added beef in small amounts, eggs, oysters, and a few fresh green vegetables.

The second important symptoms to correct are the *constipation*, which is often most obstinate, and *clearing* the stomach of the tenacious mucus which neutralizes what gastric juice is secreted. Appropriate purgatives are the natural mineral waters, such as Bedford Water, Saratoga, or Hunyadi Janos, or—

℞. Magnesii sulph., ... ℥ i–ij
Sodii et potass. tart., ... ℥ ss–j
Acid. tartaric., ... gr. xx. M.

Dissolved in a glass of water and drunk, effervescing, an hour before breakfast.

An excellent purgative and promotor of stomachic peristalsis is:—

℞. Extracti rhamni purshianæ fld. . . . . f ℥ j
Glycerini . . . . . f ℥ ss
Tinct. nucis vomicæ, ... f ℥ ss
Aquæ chloroformi, ... f ℥ j. M.

Sig.—One to two teaspoonfuls after meals, well diluted.

For the purpose of *cleansing* the stomach of the tenacious mucus as well as for its stimulating action on the glands *lavage* or irrigation of the stomach with lukewarm water is valuable. The water can be medicated with a solution of salt, or sodii bicarbonas or acidum boric. Ewald considers the morning, on an empty stomach, the preferable hour for the practice of stomach washing.

For patients who object to lavage great relief follows the systematic drinking of one-half to one pint of *hot* water an hour *before* meals.

For the irritable condition of the mucous membrane, associated with poor appetite and slow digestion, good results are reported from *strontii bromidum*, gr. x–xv, well diluted, before meals.

To aid digestion, acids, pepsin, pancreatin, papoid and bitters are of value, the following being an excellent prescription :—

℞ Pepsini (cryst), ... gr. xlviij–ʒj
Acid. hydrochlorici dil., ... fʒiv
Glycerini, ... fʒiv
Strychninæ sulph., ... gr. ss
Aquæ chloroformi, ... q. s. ad fʒiij. M.

For the morbid condition itself may be used, *liq. potassii arsenitis*, gtt. j–ij *before meals*, or *bismuth subnit.*, gr. x–xx, on a comparatively empty stomach, one hour before or two or three hours after meals; it may at times be combined with *sodii bicarbonas*. *Argenti nitras*, gr. ¼–⅓, or *argenti oxidum*, gr. ½–j, in pill, *before meals*, or *acidum hydrochloricum dilutum*, gtt. x–xx, in water, before meals, are useful remedies.

Pain is so severe in some cases that resort must be had at times to *opium* or *belladonna* in small doses, after meals. *Cocainæ hydrochloras*, gr. ⅙, is also recommended.

Rest of the body and mind is almost as imperative as rest of the stomach.

GASTRIC ULCER.

Synonyms. Peptic ulcer; chronic gastric ulcer; perforating ulcer.

Definition. A solution of continuity, involving the mucous membrane and one or more layers of which the walls of the stomach are composed; characterized by pain, disorders of digestion and vomiting of blood.

Causes. There is no generally accepted view of the etiology. Ewald attributes it mainly to an "altered composition of the blood, and the resulting insufficient nourishment of the cells." Riegel claims that the ulcer is due to a self-digestion of the stomach at a limited spot, and it is certainly more than a coincidence that in ulcer the gastric juice is always hyperacid. More common in young females than males. Anæmia or its sequelæ a chief factor. Disorders of menstruation; blows over the epigastrium; burns of the integument; syphilis; tuberculosis. Virchow claims that *emboli* or *thrombi* form in the nutrient gastric arteries which have lost their tonicity, an ulcer forming at the point of obstruction.

Pathological Anatomy. In the majority of cases the ulcer is

solitary. The posterior wall near the pylorus is the most frequent location.

In a typical case there is a circular hole, with sharp borders in the serous coat of the stomach; the loss of substance is greater in the mucous membrane than in the muscular coat, and greater in this than in the serous coat, so that the ulcer looks like a shallow funnel, the apex at the outer wall, the base at the inner wall of the stomach; it is first round, growing, becomes elliptical, bulging at portions, becoming irregular; size, from ¼–½ inch in diameter. When the ulcer heals before all the coats are perforated, a distinct cicatrix marks the location. During its progress nutrient vessels are eroded, causing profuse hemorrhage. Chronic gastric catarrh complicates the majority of cases.

Symptoms. More or less prominent symptoms of indigestion. *Pain* constant at the "pit of the stomach," increased by taking food, especially of an irritating character, the pain often felt in the back, of a *burning, gnawing* character. *Tenderness* at one or more points, extending from the front to the back. *Vomiting* is almost as constant as pain, coming on soon after eating if the ulcer is at the cardiac orifice, an hour or so after it is located at or near the pylorus. Rejected matter may be undigested or partly digested food, or simply acrid mucus. *Vomiting of blood* in large quantities and arterial in color is almost diagnostic of gastric ulcer; the blood may be dark in color if it has remained in the stomach some time before being rejected.

Severe and frequent attacks of *gastralgia* may add to the suffering of the patient. The general condition of the patient is not significant, some being greatly debilitated, while in others the nutrition is but little deranged.

Duration. The ulcer is slow in forming, and runs a very chronic course, an average duration being, perhaps, a year. Cases are recorded in which the disease has suddenly developed and terminated by *perforation, peritonitis,* and *death* within two weeks, but such cases are rare.

Diagnosis. *Duodenal ulcer* presents symptoms so akin to those of gastric ulcer that a differential diagnosis is impossible.

Chronic gastritis is often confounded with gastric ulcer; the distinctive points are, absence of vomiting of blood, no localized constant pain aggravated by food, and no tenderness in the back; while the symptoms of indigestion are marked and persistent, with, as a

rule, a history of spirit drinking, and the age of the patient—middle life; ulcer in the young.

The points of distinction between *gastric cancer* and *gastralgia* will be pointed out when considering those affections.

Prognosis. Not very unfavorable. Recoveries are frequent. The dangers are *perforation*, *peritonitis*, or *fatal hemorrhage*.

Treatment. Give the stomach as complete a rest as possible; this is accomplished by *rectal* alimentation, or where it cannot be carried out, an exclusive *milk* diet, adding *lime-water* to enable the stomach to better retain the milk, or a strictly skimmed-milk diet, to which may also be added lime-water; the amount of milk should be one or two ounces every two hours. *Rest in bed* is paramount, and should be enforced.

For *pain*, small doses of *morphina* should be used as needed.

For *hemorrhage*, hypodermic injections of *ergota* are most reliable. *Plumbi acetas*, gr. j–iij, arrests the bleeding and exercises a favorable influence over the ulcer.

For the *ulcer*, *liquor potassii arsenitis* gtt. j–ij every five hours, has given excellent results in several cases treated by the author; *bismuthi subnitras*, gr. xx–xxx, combined with *sodii bicarbonas*, gr. iij–v, three times a day, often does well; *argenti nitras*, gr. ¼–⅓, every four hours, or *argenti oxidum*, gr. ss. every four hours, are at times beneficial.

For the associated anæmia, *ferrum* and *arsenicum*, alone or combined, are indicated. Ferri albuminate would seem to be particularly indicated, or the following:—

℞. Pulv. ferri albuminatis, ... gr. ij
Sodii arseniat., ... gr. $\frac{1}{24}$. M.
Ft. pil. or capsule, taken 3 or 4 times daily.

The bowels must be kept soluble.

If *perforation* and *peritonitis* result, full doses of *opium* are indicated.

GASTRIC CANCER.

Synonyms. Cancer of the stomach; gastric carcinoma.

Definition. A peculiar malignant growth, occurring for the most part at the pyloric extremity of the stomach, making constant progress, destroying the gastric tissues and infecting the lymphatic

glands; characterized by disorders of digestion, pain, vomiting, marked anæmia, and terminating in all cases by the death of the patient.

Cause. Hereditary. Develops after forty years, for the most part. The question of a cancer germ is gaining ground.

Pathological Anatomy. Cancer of the stomach is the most common form of cancer. It is, as a rule, a primary cancer. The variety is most commonly the *scirrhus*, next in frequency, *medullary*, the least frequent, *colloid*. As regards the location, eighty per cent. occur at the *pylorus*.

It originates usually in the *tubules*, rapidly infiltrating the remaining tissues, thickening everywhere as it progresses, and either remains a hard nodulated mass or undergoes ulceration. The hard nodulated growth at the pylorus constricts the orifice, resulting in dilatation of the stomach. The lymphatic glands adjacent to the stomach are infiltrated, secondary cancers resulting. Ulceration into an artery causes hemorrhage into the peritoneum, resulting in local peritonitis.

Complications. Fatty heart; thrombosis; tuberculosis.

Symptoms. The development of gastric cancer is insidious with *indigestion*, progressive in character, associated with *marked acidity*, *flatulency*, and a fetid breath.

The majority of cases have *vomiting*, occurring immediately after eating, if at the cardiac orifice, and some hours after if at the pylorus; if much dilatation of the stomach develop the vomiting occurs some days after eating. The rejected matter is food in various stages of digestion, associated frequently with *black grumous masses* of altered blood and tissues. Hemorrhage is frequent, rarely profuse, usually oozing of blood altered into a dark brown or black color—"coffee-ground" vomit.

Absence of hydrochloric acid in the stomach is a very constant observation in gastric cancer. *Pain*, marked and constant, *dull, heavy*, increased by pressure or food, seldom lancinating. Marked *anæmia* and *emaciation* are present, the surface having an earthy or *fawn color*. *Œdema of the ankles* is an early diagnostic symptom in carcinoma of the stomach, often occurring as early as the third month, and may progress to a general anasarca. A *tumor* is found in three-fourths of the cases, occupying the epigastric region, *not moving with inspiration*. As the carcinoma progresses, the lymphatic glands enlarge, particularly the supra-clavicular and inguinal

glands. Jaundice frequently occurs, and the liver is enlarged. The urine often contains albumin.

The duration of the disease is about one year, the patient dying from *exhaustion*, *peritonitis*, or *hemorrhage*, the mind clear but despondent.

Diagnosis. The continuous presence of free hydrochloric acid in the stomach is a diagnostic sign of great value in excluding the probable existence of gastric cancer. *Chronic gastric catarrh* differs from gastric cancer, in the absence of a tumor, bloody vomit, characteristic pain, peculiar color of the surface, dropsy and the rapid emaciation.

Gastric ulcer differs in the character of the pain, age of the patient, large amount and color of bloody vomit, the absence of a tumor, and progressive emaciation. Still the diagnosis is often difficult.

Abdominal tumors may raise the question of a gastric cancerous tumor; the points of distinction are the characteristic symptoms of gastric cancer, and that abdominal tumors, especially of the liver and spleen, the ones most apt to cause error in diagnosis, are influenced by inspiration, while *tumors of the stomach are not* so influenced.

When a scirrhus of the pylorus lies upon the aorta, a pulsation may be communicated to it, raising the question of *aneurism of the abdominal aorta*, but the expansile pulsation of aneurism (Corrigan's sign) is wanting, as are the other symptoms of the affection, and if the patient is made to rest upon his hands and feet, the stomachic tumor falls away from the aorta and pulsation ceases.

Mikuliez claims that, by the use of his *gastroscope*, regular rhythmical motions can be seen when the pylorus is not the seat of cancer, and that such movements are absent when it is the seat of cancer.

Prognosis. Unfavorable. Internal medication offers no hope, the patient usually succumbing from starvation.

Gastric carcinoma occurring under thirty years of age is rapidly fatal, not conforming to the usual symptoms as seen later in life; the characteristic cachexia is commonly absent and hæmatemesis is rare.

Treatment. We possess no means of arresting the disease, although it is but fair to mention that in Germany *condurango* in the form of decoction is recommended as a specific in some cases. I have faithfully used the fluid extract with some benefit for the accompanying gastritis, but without effect on the tumor. "Six operations have

been practiced for the relief of stenosis of the pylorus: 1st. Pylorectomy; 2d. Gastro-enterostomy; 3d. Gastrectomy; 4th. Gastrostomy; 5th. Duodenostomy; 6th. Digital divulsion of the pylorus." Professor Billroth has *excised* the pylorus, thereby prolonging life ten months.

For *acidity* and *fetor of the breath*, *acidum carbolicum*, gr. ¼–⅓, or *carbo animalis purificatus*, gr. x–xxx, affords some relief.

For *vomiting*, *bismuth* and *opium*, or *lavage* or the washing out of the stomach.

For *pain*, *morphina*, or the following, recommended by Osler:

℞. Morphinæ sulph., ... gr. ⅛
Sodii bicarb., ... gr. v
Bismuth subnit., ... gr. x. M.
Sig.—Repeated p. r. n.

Avoid stimulants.

GASTRIC DILATATION.

Synonyms. Gastrectasis; pyloric obstruction; pyloric stenosis.

Definition. An abnormal increase of the cavity of the stomach, with the walls either hypertrophied, or decreased in thickness; characterized by pronounced indigestion, vomiting of partly digested and partly decomposed food at intervals of a day or two, and noisy moving of flatus within the abdomen (borborygmus).

Causes. Most common cause a stricture of the pylorus, the result of cancer; pressure of tumor against the pylorus, preventing exit of stomachic contents. Loss of muscular tone, occurring in anæmia. Prof. Bartholow cites cases resulting in excessive beer-drinkers, who drank thirty to forty glasses of beer habitually, every day.

Pathological Anatomy. When obstruction exists at the pylorus, the whole organ is dilated, with hypertrophy of the muscular layer of the stomach. In dilatation without pyloric obstruction, the muscular layer is thinner than normal, paler in color, and presents signs of fatty degeneration; the mucous membrane is also pale, thin, and without rugæ.

Symptoms. Those of the disease producing the obstruction *plus* those of obstinate chronic gastric catarrh, with *characteristic vomiting;* the cavity having a greatly increased capacity, large accumulations take place, which are rejected every day or two, partly digested and partly decomposed. *Regurgitation* of partly digested aliment, acrid,

acid, and offensive, is very common. *Bowels constipated*, the stools hard and dry.

Physical signs of gastric dilatation are: *on inspection*, abnormal prominence of the whole epigastric region, with a tumor in the *pyloric region* which seems to be connected with the stomach; *percussion*, if empty, tympanitic note extending to or below the umbilicus, having a metallic quality; if the stomach be filled, high-pitched flat note; *auscultation*, splashing and rumbling sound, the succussion sound being distinct if the body be shaken.

Diagnosis. Copious vomiting of food partly digested, once in twenty-four hours or less often, epigastric distress and pain resulting from foul smelling and acid eructations and from obstinate constipation.

Penzoldt's modification of Piorry's method of determining gastric dilatation is to withdraw the contents of the stomach by means of the œsophageal tube and then refilling the stomach with fluid. By noting the lower limit of percussion dullness thus produced, the lower border of the stomach can be accurately determined.

Treatment. Regulated diet. Restrict the use of fluids, using a "dry diet" exclusively.

If the result of pyloric stenosis, one of the operations mentioned for pyloric cancer may be indicated.

Regardless of the cause, washing out the stomach with the stomach tube, every day or two, gives relief, and, if no stricture be present, administer *strychnina* or *nux vomica*, and very favorable results may follow.

GASTRIC HEMORRHAGE.

Synonyms. Hæmatemesis; gastrorrhagia.

Definition. Gastric hemorrhage is not, strictly speaking, a disease, but a *symptom;* still, vomiting of blood occurs under such a variety of conditions, that a separate consideration is desirable.

Causes. Ulcer of the stomach; cancer of the stomach; scurvy; purpura; hæmophilia; hemorrhagic malarial fever; congestion of the liver or spleen; vicarious at menstrual period; yellow fever; toxic gastritis.

Symptoms. Added to the symptoms of the cause of the hemorrhage, are a *feeling of faintness* and *sinking at the pit of the stom-*

ach, followed by the ejection of blood of a *black, grumous*, or *coffee-ground* appearance. Rarely, and then generally in gastric ulcer, the ejected blood may have a *bright red* appearance, the gastric juice not having had time to act upon it. If the amount of blood escaping into the stomach is large, *blood will be voided by stool.*

Diagnosis. *Hemorrhage from the lungs* may be confounded with gastric hemorrhage. In the former, the blood is red, is coughed up, not vomited, and is associated with a history of pulmonary disease. The chief point of distinction between pulmonary hemorrhage and the vomiting of red blood is, that in the former you can discern rāles on auscultating the chest, and they are absent in the latter.

Prognosis. Depends entirely upon the cause, the most unfavorable being the result of either gastric ulcer, or cancer, or hæmophilia.

Treatment. Complete rest in bed. *Ice*, internally and applied in bladders over the epigastrium and along the spine, or *hot water*, as hot as can be borne, in quantities of four to six ounces at very frequent intervals.

Hypodermic injections of *morphina* quiet the patient's fear, and at the same time have a constringing effect upon the vessels. *Extractum ergotæ fluidum* or *ergotin* hypodermically after the patient is quieted, or *liquor ferri subsulphatis*, gtt. j–v, well diluted by stomach.

Cases resulting from congestion of the liver or spleen are benefited by *saline purgatives.*

Allow no food by the stomach for several days, nourishing the patient by rectal alimentation.

The hemorrhage controlled, the future treatment is guided by the exciting cause.

GASTRALGIA.

Synonyms. Cardialgia; gastrodynia; stomachic colic; spasm of the stomach; neuralgia of the stomach.

Definition. A painful condition of the sensory nerves of the stomach, induced by various sources of irritation; characterized by violent paroxysms of gastric pain and spasm, associated with feeble cardiac action, and symptoms of collapse.

Causes. The affection belongs to the group of neuralgiæ. The most important factor in its causation is general nervous depression; other causes are gastric cancer or ulcer, malaria, rheumatic or gouty

diathesis, anæmia, and certain articles of diet. Occurring in chronic nervous affections, the so-called "gastric crises."

Symptoms. Like most neuroses, gastralgia is distinguished by its *paroxysmal* character. *Romberg* thus describes an attack :—

"Suddenly, or after a feeling of pressure at the præcordium, there is severe *griping pain* in the stomach, usually extending to the back, with a *feeling of faintness*, a shrunken countenance, cold hands and feet, and an *intermittent pulse*. The *pain* becomes so excessive that the patient cries out. The *epigastrium* is either *puffed out*, like a ball, or *retracted*, with tension of the abdominal walls. There is often *pulsation in the epigastrium*. External pressure is well borne, and not unfrequently the patient presses the pit of the stomach against some firm substance, or compresses it with his hands. *Sympathetic pains* often occur in the thorax, under the sternum, and in the œsophageal branches of the pneumogastric, while they are rare in the exterior of the body."

"The attack lasts from a few minutes to half an hour or longer; then the pain gradually subsides, leaving the patient much exhausted; or else it ceases suddenly, with eructation of gas or watery fluid, or with vomiting, and with a gentle, soft perspiration, or with the passage of reddish urine."

Besides such severe attacks, we often see *painful sensations in the epigastrium*, of various degrees of intensity, with passing faintness or sinking at the "pit of the stomach."

Diagnosis. From *myalgia of the abdominal muscles*, by the pain of gastralgia being more acute and lancinating, accompanied by nausea and vomiting and the absence of tenderness on pressure.

From *intercostal neuralgia*, by the fact that in this affection the pain is in the left hypochondrium, with painful spots along the course of the nerve trunk and at the spine, and absence of nausea and vomiting.

From *gastric cancer*, by the age, character of the vomited matter, constancy of the pain, the cachexia, emaciation, *and the tumor.*

From *gastric ulcer*, by the localized pain and its constancy, with tenderness and vomiting of blood, and constant dyspeptic symptoms, which is not the case in gastralgia.

Prognosis. As to perfect recovery, unfavorable, but not dangerous to life. A chronic affection, in that attacks are prone to return from time to time. The cause has much to influence a radical cure.

Treatment. *For the paroxysm*, hypodermic injections of *morphina*, gr. $\frac{1}{12}$–$\frac{1}{4}$, or the stomachic administration of the "compound of anodynes," the so-called *chlorodyne*, in doses of ♏x–xxx p. r. n. The relief afforded by opium in some form is so decided that it is apt to lead to the opium habit when the attacks are frequent. *Salicinum* is a valuable remedy in this as in many other forms of neuralgia.

In the interval, regulated diet and one or more of the following remedies: *argenti nitras, quinina, arsenicum, bismuth salicylas, ferrum, liquor iodii comp.*, or small doses of *potassii iodidum*.

ATONIC DYSPEPSIA.

Synonyms. Dyspepsia; indigestion; heartburn; pyrosis.

Definition. A functional derangement of the stomach, with either deficient secretion in the *quantity* or *quality* of the gastric juice; characterized by disorders of the functions of digestion and assimilation and the presence of sympathetic nervous symptoms.

Causes. Imperfect mastication; bolting of food; eating large quantities of food; same diet long continued; depressed nervous system, from worry and fatigue; sedentary habits or occupations. It is often inherited.

Symptoms. *Perverted appetite*, capricious or lost; *difficult digestion*, a feeling of weight or fullness in the epigastrium; *acidity*, from the decomposition of albuminoids; *heartburn, flatulency, regurgitation*, or *vomiting* of portions of partly digested food or acrid fluid—*water brash* or *pyrosis*. *Pain* or *soreness* at the "pit of stomach" during digestion. *Tongue* either clean or broad, flabby and pale, showing marks of the teeth. *Bowels* constipated; *urine* generally scanty and high-colored, with excess of urates or oxalates, or, in persons of nervous type, it is pale, of low *specific gravity*, and contains phosphates. *Drowsiness* after meals, with *wakefulness* at night, *defective memory, headache*, and absent mental vigor, with *flashes of heat*, followed by more or less perspiration. Palpitation of the heart with irregularity in rhythm.

Varieties of Dyspepsia.—I. *Nervous dyspepsia*, atonic form, seen in active business or busy professional men, especially those of thin, spare build, of nervous temperament, who eat meals rapidly and hurry off to their business. These cases present all the marked

nervous phenomena. II. *Flatulent dyspepsia*, seen in hysterical individuals, and showing immense development of gas throughout the abdomen, associated with vertigo and mental worry or hypochondria. III. *Acid dyspepsia*, water-brash. Seen when the diet is coarse. Acidity of the gastro-intestinal canal and of the urine. IV. *Irritative dyspepsia*. Vomiting a prominent symptom. In these cases the tongue is small, red, and pointed.

Prognosis. With careful living, dyspepsia, functional in character, is curable. It has been aptly termed "remorse of the stomach."

Treatment. The most important indication is to regulate the diet. *Forbid saccharine, starchy, or fatty articles of food.* Eat small amounts at a time. Perfect insalivation and mastication. *Rest after eating*, from a half to an hour. Allow but small quantities of liquids with the meals. In the vast majority of cases *forbid the use of stimulants with the meals.*

Aid *digestion* with *pepsinum*, with or without *acidum hydrochloricum dilutum.*

Stimulate stomachic peristalsis with *nux vomica, gentian* or *cinchona.*

For *acidity, alkalies* at time of acidity.

For *flatulency, carbo animalis purificatus*, gr. x–xx, or one or more of the carminatives, with *tinctura nucis vomica* before meals.

For *pyrosis, bismuth* and *pulvis aromaticus*, in large doses.

For *vomiting, sodii bromidum* in small doses, or *acidum carbolicum*, gr. ⅙–¼, three or four times daily, or *chloral hydrate*, gr. x–xv, in demulcent by mouth or rectum, repeated p. r. n.

For *constipation, resina podophyllum* at bedtime, or Hunyadi Janos water before breakfast, hot.

For *anæmia, massa ferri carbonatis* or *ferri lactas.*

Irrigation of the stomach or lavage often gives remarkable relief. The drinking of *hot water* one-half to one pint an hour before meals is of benefit.

A homely but efficient combination for atonic dyspepsia associated with scanty, acid urine and constipation, is—

℞. Sodii bicarbonatis, ... ʒij
Tinct. nucis. vomicæ, ... fʒiv
Tinct. capsici, ... fʒj
Tinct. rhei., ... fʒiss
Inf. gentian. comp., ... ad fʒvj. M.

Sig.—Half tablespoonful after meals, in water.

DISEASES OF THE INTESTINAL CANAL.

INTESTINAL INDIGESTION.

Synonym. Intestinal dyspepsia.

Definition. A derangement in the functions of intestinal digestion, resulting in the more or less complete decomposition of the *chyme*, caused by defects in the pancreatic, biliary, or intestinal secretions, or from deficient peristalsis, one or more of these, singly or combined; characterized by abdominal pain, distention and tympanites developing some hours after meals and nervous perturbation, anæmia and emaciation.

Causes. Imperfect diet; over-eating; anæmia; deficient exercise; worry; immoderate use of tobacco or stimulants; diseases of the stomach, intestinal tract, liver, or pancreas; malaria. Frequently inherited.

Symptoms. Intestinal indigestion may be either *acute* or *chronic*, the latter the more common.

Acute variety, the result of an irritant in the duodenum, rapidly developed *pain*, *flatulency*, *borborygmi*, slight *feverishness*, coated tongue, loss of appetite, headache, *pains in the limbs*, usually terminating in a mild attack of *diarrhœa*.

If the attack develops rapidly, the sudden formation of gases causes a paroxysm of *colic*.

Severe attacks are associated with disordered hepatic function, light-colored stools, slight jaundice, and high-colored urine.

Chronic variety, resulting from a greater or less decomposition of the partly altered food from the stomach. *Pain*, varying in character, occurring from two to four or six hours after meals, with *slight tenderness* and some *fullness* in the right hypochondrium, epigastrium, or the umbilical region. *Tympanites* and *borborygmi* are marked, the result of gaseous accumulations which have developed from the decomposition of the intestinal contents. *Dyspnœa*, the result of pressure against the diaphragm, is of frequent occurrence. Marked nervous phenomena develop, the result of the anæmia from deficient assimilation and from the depressing influence on the nervous system of the absorption of the "gases of decomposition,"

or ptomaines; *depression of spirits, hypochondriasis, sleeplessness, disturbing dreams, headache, vertigo, buzzing in the ears, muscæ volitantes, deficient mental application, cardiac irritability, numbness* and *tingling in the extremities,* anomalous *pains* throughout the *body,* and in extreme cases, attacks of *fainting* or *epileptiform* and *cataleptic* attacks.

The *skin* is harsh and dry, the *bowels* are sluggish or *constipated,* the *urine* is high colored, of increased density, decidedly acid, and, on cooling deposits lithates, uric acid and oxalate of lime crystals.

Functional derangement of the liver follows after a time, adding to the general distress.

Anæmia and *emaciation* result if the attack be protracted.

Diagnosis. With our present knowledge it is usually impossible to designate forms of intestinal indigestion due to defects in the quantity or quality of either the pancreatic, biliary or intestinal secretions.

Acute intestinal indigestion differs from gastric indigestion in the time of development of the various phenomena, in the latter the symptoms appearing almost immediately after meals, while in the former not appearing until two, four or six hours after.

Chronic intestinal indigestion may mislead the physician if the various nervous phenomena are of a marked character, and a careful history of the case is not developed.

Prognosis. Favorable if proper and early treatment be inaugurated, unless the result of an organic lesion.

Treatment. *Acute variety,* the result of undigested food, is best treated by *opium* in some form, to relieve the acute suffering, warmth to the abdomen, and a prompt cathartic to cause its rapid expulsion, or six or eight calomel powders two or three hours apart, followed the next morning by a saline (℞. Hydrarg. chlor. mit., gr. ⅓–½; sodii bicarb., gr. ij; pulv. ipecac., gr. ⅙; sacch. lact., gr. iij. M. ft. charta.).

Chronic variety. Of the first importance is the diet, which should be restricted in amount and confined almost entirely to articles which are readily digested in the stomach, such as beef, eggs and milk.

The hepatic, pancreatic and intestinal secretions should be stimulated by a course of *alkalies,* one of the most efficient being *sodii*

phosphas, ʒj–ij, three times a day, or the following excellent combination:

℞. Sodii phosphat., ... ʒj
Acid. phosph. dil., ... fʒiij
Syr. zingib., ... fʒj
Inf. gentian co., ... q. s. ad fʒvj. M.
Sig.—One tablespoonful in water after meals.

Aid intestinal digestion by the administration of ℞. Papoid, gr. j–ij; naphtalini, gr. j; ext. nucis vomicæ, gr. ½. M. Ft. pil. One such to be taken every four or six hours, or *liquor pancreaticus*, fʒj–iv, or *extractum pancreatis*, gr. ij–vj, with *sodii bicarbonatis*, gr. v–x, two or three hours after meals, or *fel bovis purificatum*, gr. j–iij, after meals.

For constipation, bitter waters, such as Bedford, Friedrichshall, Pullna, or Hunyadi Jânos, or *resina podophyllum*, at bedtime.

INTESTINAL COLIC.

Synonyms. Enteralgia; tormina; gripes.

Definition. A spasmodic contraction of the muscular layer of the intestinal tube; characterized by acute paroxysmal pain near the umbilicus, relieved by pressure, and associated with feeble cardiac action.

Causes. Constipation; presence of indigestible food; collections of flatus; an abnormal amount of bile discharged into the intestines; lead poisoning; syphilis; chronic malaria; rheumatism; hysteria.

Symptoms. *Romberg* thus describes a paroxysm: "There are attacks of *pain*, spreading from the navel over the abdomen, alternating with intervals of ease. The pain is *tearing*, *cutting*, *pressing*, most frequently *twitching*, *pinching*, accompanied by peculiar *bearing-down pains*. The patient is restless, and seeks *relief* in changing his position and in *compressing the abdomen;* his surface may be cold and his features pinched. The *pulse is small and hard*. The abdomen is tense, whether puffed up or drawn inward. There are *often nausea* and *vomiting*, and *desire* for *stool*. There is usually constipation, but sometimes the bowels are regular or even too loose. *Duration* from a few minutes to several hours, relaxing at intervals. The attack ceases suddenly, with a feeling of the greatest relief, although some soreness remains for a few days."

Lead colic is always preceded by symptoms of lead poisoning, to

wit: slate-colored skin, dark gums showing a blue line, heavy breath, with sweetish metallic taste, obstinate constipation, impaired appetite, slow pulse and contracted abdominal walls.

Diagnosis. *Gastralgia* differs from colic, in the pain being in the epigastric region and associated with disorders of digestion.

In *hepatic colic*, or the passage of gallstones, the pain is in the hepatic region, attended with soreness over the gall bladder, and retching and vomiting, followed by jaundice and the presence of bile in the urine.

In *nephritic colic* the pain follows the course of one or both ureters, shooting to loins and thigh, with retraction of the testicle of the affected side, strangury and bloody urine.

In *uterine colic* the pain is in the pelvis, and associated with menstrual disorders, in fact, a dysmenorrhœa.

In *ovarian colic* or neuralgia, pain on pressure over the ovaries, with hysterical phenomena.

Inflammatory disorders of the abdomen differ from colic by the presence of fever and tenderness on pressure.

Prognosis. Most favorable. Death is the rarest termination possible.

Treatment. Relief of pain is the first indication, and is best accomplished by a hypodermic injection of *morphina*, gr. ⅙–⅓, which has the additional advantage of relaxing the spasm, thereby favoring the action of *purgatives*, which should soon follow. One of the best in colic, no matter from what cause, is *massæ hydrargyrum*, gr. v–x, or *hydrargyri chloridum mite*, gr. ½ every half hour until four or five grains are taken, followed by a mild *saline cathartic*.

After the relief of the pain and free action of the bowels, the cause of the attack should be ascertained and corrected, to prevent future suffering.

For *lead colic*, *morphina*, for the pain; *oleum ricini* or *magnesii sulphas*, ℥j, every hour for the constipation, and *potassi iodidum*, gr. v–x, after meals, to eliminate the metal from the system. Excellent results often follow a free or several small venesections in lead poisoning.

Gratifying results in attacks of lead colic have been reported from tumblerful doses of *oleum olivæ*, repeated until some six ounces have been used. It is said to be curative in lead poisoning, in daily doses of two ounces, continued for some time.

CONSTIPATION.

Synonyms. Intestinal torpor; costiveness.

Definition. A functional inactivity of the intestinal canal, either due to atony of the muscular coat, causing lessened peristalsis, or to a deficiency of intestinal and biliary secretion; characterized by a change in the character, frequency and quantity of the stools.

Causes. Dyspepsia; character of the food; habits of the patient; diseases of the stomach and liver; malaria; lead poisoning; syphilis.

Symptoms. In the normal condition the majority of persons have *one stool* each day, although it is not to be considered abnormal if more or less than that number occur.

The *bowels* are moved every *three* or *four days*, with great *straining* and *distress*, the *face* often *flushed*, the *cerebral vessels full*.

Or in other cases the bowels may be relieved once a day, but the *stool is small and hard*, causing great distress.

Another group of cases have *frequent stools* during the day, *small* and *non-formed*, due to retained hardened fæces acting as an irritant upon the rectum.

The change in the character of the stools is soon followed by symptoms of dyspepsia, headache, mental torpor, vertigo, palpitation on exertion, and in many cases with great distention of the abdomen.

Prognosis. Death never results from functional constipation.

Treatment. The successful treatment depends upon the *removal of the cause* and the hearty *co-operation of the patient*.

First, the patient must have a *regular hour* each day for *going to stool*, and must *remain a sufficient time* to permit a thorough evacuation of the bowels.

Second, the diet must be carefully regulated.

Third, purgative mineral waters or cathartic medicines are to be *used with caution*, their reckless administration often doing more harm than good.

Fourth, either of the following formulæ, aided by the enforcement of the above rules, will give good results:—

℞. Ext. nucis vomicæ, ... gr. ¼
Ext. belladonnæ alco., ... gr. ¼
Ext. aloes aqua., ... gr. ss
Pulv. rhei., ... gr. j
Olei cajuputi, ... gtt. j. M.

In pill, at bedtime, and after a week, every second or third night.

℞. Resinæ podophyl.,
Ext. physostig.,
Ext. belladonnæ alco.,
Aloine, ... āā . . . . . gr. ¼.
In pill, every night, or second or third night.

℞. Ext. cascaræ sagradæ, fld., ... ♏xx
Glycerini, ... ♏xx
Syr. sarsaparillæ, ... ♏xx.
Hour after meals, or once a day as indicated.

Success often follows an enema of *glycerini* ʒj–iv, or a suppository of *glycerinum*.

Electricity to the abdomen is worthy a trial; one pole over abdomen the other at anus, using either galvanism or faradism.

DIARRHŒA.

Synonyms. Enterorrhœa; alvine flux; purging.

Definition. Frequent loose alvine evacuations, without tenesmus; due to functional or organic derangement of the small intestines, produced by causes acting either locally or constitutionally.

Causes. Those acting locally, such as *indigestion*, *indigestible food*, *impure food and water*, *irritating matters* or *secretions* poured into the bowels, or *entozoa*, cause the flux by a direct irritation of the mucous surface.

Attacks of diarrhœa due to constitutional derangement may be secondary to such diseases as *tuberculosis*, *pyæmia*, *albuminuria*, *typhoid fever*, or disturbances of the functions of other organs, giving rise to *vicarious fluxes*.

Atmospheric changes as well as a sudden mental shock will predispose to an attack of diarrhœa.

Forms. Acute and chronic.

Symptoms. Acute diarrhœa presents itself in several varieties, the result of its particular cause, to wit:—

Feculent diarrhœa. A few hours after meals the patient feels *colicky pains and flatulency*, with a *desire for stool*. There is often *nausea*, *coated tongue*, but seldom vomiting. The *pain* is generally relieved by the purging which ensues. The *stools* have a *feculent* character, are of brown fluid, containing fæces, often offensive, the

color becoming lighter after four or five evacuations. Constitutional symptoms are wanting.

This form is the result of over eating, eating too rapidly, or indigestion of different forms, or worms in the intestinal canal, and patients generally recover in a day or two.

Lienteric diarrhœa. In this form there is, with the frequency of evacuations, a *want of assimilation* of *food*, which passes through the intestines more or less unaltered. The *stools* are frequent, *mucous* or *serous*, more or less *covered with bile*, mixed with *undigested food*. In this form the patients emaciate rapidly, owing to the deficient assimilation, the digested portions of the food being hurried on by the increased peristalsis of the irritated bowel. It is usually subacute in its course.

Bilious diarrhœa. The *stools* are frequent, *green or yellow*, with *scalding sensations* at the anus and *griping pains* in the abdomen. Excessive biliary secretion is the irritating cause.

Any of the above forms may pass into chronic diarrhœa by exciting permanent diseases of the intestines. Diarrhœa due to constitutional causes will be mentioned when speaking of those conditions.

Chronic diarrhœa results from repeated attacks of the acute form, or is the result of some cachexia. The *symptoms*, as far as the *stools* are concerned, are much the same as the acute disease, except they are *paler*, whence it has been termed *white flux;* in addition, *dyspeptic* symptoms, *aphthous* condition of the mouth and tongue, *flatulency*, *colic*, *emaciation*, and *anæmia*. The appetite is at times capricious, again impaired.

Prognosis. Favorable in *feculent* and *bilious* forms; unfavorable in *lienteric* and *chronic* forms when emaciation begins. Diarrhœa occurring as a symptom, the prognosis is controlled by the original disease.

Treatment. *Acute diarrhœa.* If the tongue is heavily coated, the breath fetid, and the stools not excessive in number, it is well to clear the intestinal canal with a laxative such as *oleum ricini* or a saline. For children between one and two years of age:—

℞. Pulv. ipecac., ... gr. ½
Pulv. rhei, ... gr. ¼-⅓
Sodii bicarb., ... gr. ss–ij. M.
Every four hours until the character of the stools change.

As a rule, however, the stools have become so frequent when ad-

vice is sought that the time for laxatives has passed, and some one of the following combinations is indicated :—

℞. Salol, ... gr. xxiv–xlviij
Bismuth subnit., ... ʒj
Sacch. lac., ... ʒj. M.
Ft. chart. No. xij.
SIG.—One every two or three hours, reducing the dose for children.

Or :—

℞. Bismuthi salicylat., ... gr. xxx
Morphinæ sulph., ... gr. j. M.
Ft. chart. No. vj.
SIG.—One every three hours.

Or the following modification of "Squibb's diarrhœa mixture :"—

℞. Tinct. opii deodorat., ... fʒ viss
Tinct. camphoræ, ... fʒj
Tinct. capsici, ... fʒv
Chloroformi puræ, ... fʒiiss
Spts. vini gallici, ... fʒj
Alcoholis, ... ad . . . . fʒiv. M.
SIG.—One teaspoonful, p. r. n.

Or the following, which I have always found successful :—

℞. Tinct. opii deodorat., ... fʒ vss
Spts. chloroformi, ... fʒij
Acid. sulphuric. dil., ... fʒj
Vini pepsini, ... ad q. s. . . fʒiv. M.
SIG.—One teaspoonful in water after each stool.

For the *bilious* form :—

℞. Hydrargyri chlor. mitis, ... gr. ⅛
Sodii bicarb., ... gr. ij
Pulv. opii, ... gr. ¼. M.
In powder, every two or three hours, until eight powders are used, followed by large doses of *bismuth* and *pepsinum*.

In all acute forms *restricted* and *regulated diet* are imperative, *pure milk* with *liquor calcis* being the most suitable.

In adults, an *opium* suppository often checks a flux that is uninfluenced by opium internally.

In *lienteric* or dyspeptic diarrhœa a carefully regulated diet and either of the following combinations :—

℞. Pepsini glycerit., ... f℥j
Liq. potassii arsenit., ... ♏xxiv
Tinct. opii deodorat., ... f℥ij
Aq. chloroformi . . . . . ad q. s. . . f℥iij. M.
SIG.—One teaspoonful at meal time.

Or:—

℞. Papoid, ... gr. xxiv
Bismuth subnit., ... ℥j. M.
Ft. chart. No. xij.
SIG.—One at meal time.

Chronic diarrhœa. Bismuth, gr. xxx–xl, in milk, every four hours *Hope's camphor mixture*, f℥j every four hours, or *cupri sulphas*, gr. $\frac{1}{12}$, *ext. opii*, gr. $\frac{1}{12}$, every four hours, or *argenti nitras*, gr. ½, *ext. opii*, gr. $\frac{1}{3}$, every five hours; may all be used with more or less success; when *dry tongue* and *great flatulency*, use :—

℞. Ol. terebinthini, ... f℥j
Ol. amygdal., express., ... f℥ss
Tinct. opii, ... f℥ij
Mucil. acaciæ, ... f℥v
Aq. laurocerasi, ... f℥ss. M.
SIG.—f℥j every three or four hours.

The diet should be nutritious in character, and moderate stimulants are indicated. Activity of the skin and kidneys should be encouraged.

All varieties of intestinal catarrh or diarrhœa are benefited by a few days rest in bed and daily hot baths.

CATARRHAL ENTERITIS.

Synonyms. Intestinal catarrh; acute diarrhœa; inflammation of the bowels.

Definition. A catarrhal inflammation of the mucous membrane of the small intestines; characterized by fever, pain, tenderness, and looseness of the bowels. When the catarrh is limited to the duodenum it is termed *duodenitis*.

Pathological Anatomy. There first ensues *hyperæmia* of the mucous membrane and intestinal glands, manifested by *redness*, *swelling* and *œdema;* this is followed by *increased secretion*, and an *overgrowth* and *desquamation* of the epithelium, together with a copi-

ous *generation of young cells*. As a result of the hyperæmia, rupture of the capillaries and extravasation of blood often occur.

The swollen glands show a strong tendency to ulcerate. This catarrhal process may involve the entire tube or be limited to portions of it. If the catarrhal changes extend to the *ileum*, the solitary and Peyerian glands show swellings that might be mistaken for the changes of typhoid fever.

Causes. A specific virus seems probable in some cases. Improper and indigestible food; summer temperature and exposure to cold and wet, while perspiring, Swallowing fish bones, cherry stones, unmasticated kernels of nuts, etc.

Symptoms. Begins with *languor*, followed by *chilliness* and *fever*, the temperature ranging at 102°–103°, this is followed by *pain*, colicky and paroxysmal in character, situated above the umbilicus, *localized tenderness* and *loose evacuations*. *Nausea* and *vomiting* often occur. The *bowels* are at first constipated, followed by persistent diarrhœa; the *stools* contain but *little fecal matter*, are *yellow* or *greenish-yellow* in color, mixed with *undigested food;* if the stools are numerous, they become whitish and watery, the so-called "*rice-water*" discharges. No blood in stools. The appetite is impaired, and this, with the want of assimilation and great waste, soon produce extreme *weakness* and *emaciation*, which is always more marked in children. I have frequently noted a peculiar abdominal eruption in severe cases of intestinal catarrh, occurring as isolated dark red spots, larger than those of typhoid fever, lasting each, twenty-four hours, disappearing on pressure and with decline of fever.

Duration. In mild cases, four or five days; severe cases continue more or less marked, for a week or two.

Diagnosis. From *colic*, by the absence of tenderness and fever, and presence of constipation and its paroxysmal character.

From *typhoid fever*, by the absence of prodromes, characteristic step-like temperature record and characteristic eruption.

For points of distinction from *dysentery* or *peritonitis*, see those affections.

Prognosis. Favorable, if early and proper treatment is employed.

Treatment. *Rest the bowels* by a restricted diet, such as milk and lime water, or weak mutton or chicken soups, with well boiled rice added.

Keep the patient quiet in bed, a difficult matter in the case of children.

For *adults*, *opium* is the remedy, in doses to control the symptoms; mild cases do well with—

℞. Ext. opii, ... gr. ¼–½
Camphoræ, ... gr. iij. M.
In pill, every three hours.

Or—

℞. Tinct. opii deodorat., ... gtt. x
Liq. potassii citrat., ... ℥ ij. M.
Every hour until opium effect.

The strength and the frequency of administration of either of these formulæ must be governed by the severity of the attack.

Salol gr. j–iij, and *bismuth salicylas* gr. x–xv every few hours, is often of value in intestinal catarrh, although my experience is favorable to opium.

If *vomiting* is annoying, all other treatment must be discontinued until it has been controlled, the following being usually efficient (℞ hydrarygri chlor. mite, gr. ⅛; sodii bicarbon., gr. ij; sacch. lac. gr. ij. M. and give every hour or two, dry, on tongue).

For *children*:—

℞. Tinct. opii deodorat., ... gtt. j
Bismuth. subnit., ... gr. v
Mist. cretæ, ... f℥ j. M.
Every two hours, for a child of one year.

If the case shows the least tendency to linger the *acid* treatment should be substituted, one of the best formulæ being "Hope's Camphor Mixture." The following, which I have used with much success in the insane wards of the Philadelphia Hospital, where at times, we see a good deal of intestinal catarrh, and which I have named "Mistura Enterica," is generally satisfactory:—

℞. Spts. camphoræ, ... f℥ j
Acid. sulphurici, dil., ... f℥ iss
Tinct. opii deodorat., ... f℥ j
Tinct. capsici . . . . . f℥ ss
Spts. chloroformi, ... f℥ ss
Spts. vini gallici, ... q. s. ad . . f℥ vj. M.
Sig.—One to two teaspoonfuls well diluted, every three or four hours.

Locally. Poultices, warm fomentations, or *ung. belladonnæ* or *oleum camphoratæ*, give great relief.

CROUPOUS ENTERITIS.

Synonym. Membranous enteritis.

Definition. A croupous inflammation of the mucous membrane of the small intestines; characterized by tenderness, paroxysmal pain, moderate fever, and the formation and discharge at stool of membranous shreds or casts.

Causes. A disease of adult life. The female sex more liable than the male, and neuralgic, nervous, hysterical or hypochondriacal subjects are more subject to it than are other types.

A peculiar state of the nervous system seems necessary to its production. It is not a frequent disease.

Pathological Anatomy. A subacute inflammation of the small intestines, during which the mucous membrane becomes covered with a whitish or grayish-white, firmly adherent, membranous deposit, cemented together by a coagulable exudation, and prolonged by rootlets from its under surface into the intestinal follicles.

Symptoms. Begins by *feverishness*, feeling of *soreness* and *distention* of the abdomen; these are followed by *pains* of a colicky character, severe and depressing, felt around the *umbilicus*, associated with *tenderness*, continuing for half an hour, an hour or longer, and after a longer or shorter interval occurring again; these phenomena continue for a day or two, when *looseness of the bowels*, with distressing *pain and tenesmus* occur, the *stools* containing *mucus*, with or without *blood*, and *shreds of membrane* or *cylindrical casts of the bowel*. Great relief is then experienced, although a *feeling* of *rawness* or *soreness* persists for a day or two.

Preceding the local manifestations of the disease are attacks of hysteria, hypochondriasis, neuralgia, nervousness or excitability.

The paroxysms recur at intervals of a week or two, or after several months; as long an interval as three years between attacks is recorded.

Diagnosis. *Peritonitis* may be suspected until the characteristic stools occur.

Dysentery is excluded when the shreds and casts of membrane appear.

Prognosis. Favorable as to life, but one of the most difficult of diseases to eradicate.

Treatment. The *diet* must be such as contains but a minimum of fecal-forming matter.

For the *pain* and *suffering*, *opium* in some form is indicated, the most effective being a hypodermic injection of *morphina*.

For *constipation* during a paroxysm, an emulsion of *oleum ricini* and *terebinthina* is of benefit.

To prevent a return of the paroxysms either *liquor potassii arsenitis*, gtt. j–ij, before meals, or *hydrargyri chloridum corrosivum*, gr. $\frac{1}{60}$, three times a day, with a course of *oleum morrhuæ*, seems to answer in the majority of cases. Prof. Da Costa speaks highly of *pix liquida* in some form, as an alterative to the mucous membrane.

Under no circumstances must the bowels become constipated.

CHOLERA MORBUS.

Synonyms. Sporadic cholera; English cholera; bilious cholera.

Definition. An acute catarrhal inflammation of the mucous membrane of the stomach *and* intestines, of *sudden* onset; characterized by violent abdominal pains, incessant vomiting and purging, cold surface, rapid, feeble pulse, spasmodic contractions of the muscles of the abdomen and extremities, and prostration.

Causes. A disease of summer and early autumn, climatic influence being an important factor. Its prevalence during certain seasons seems to indicate a specific cause. Irritants of all kinds, unripe fruits and vegetables, and fermentation of food.

Pathological Anatomy. Cases in which death has occurred within a few hours present no pathological changes.

Generally, however, the gastro-intestinal mucous membrane is congested and denuded of epithelium; the solitary and Peyerian glands are swollen and prominent. The blood is thick, and dark in color; the kidneys are enlarged and congested; and in prolonged cases there are appearances of granular changes in the muscular system.

Symptoms. Onset sudden and violent, and unfortunately, generally *after midnight*, with chilliness, *intense nausea*, *vomiting and purging*, accompanied with distressing burning or tearing abdominal *pains* or *colic*. The *vomited matter* at first consists of the ordinary contents of the stomach, and the *stools* of ordinary fæces, but soon the *discharges* by vomit and stool are *liquid*, *whitish* or of a *green* or *yellowish* tint; if the attack is severe or protracted the discharges are of the "*rice-water*" character. The patient is rapidly *ema-*

ciated and *reduced* in strength, the body shrinks, the *surface cold* and covered with a *clammy sweat*, and the *pulse is feeble*. *Intense thirst* is present, and when drink is given it is at once rejected.

Aggravating the distress of the patient are *severe cramps* of the muscles, and especially those of the calves, and of the flexors of the thighs, forearms, fingers and toes.

Termination. *Mild cases* often terminate favorably without treatment, the patient able to be around in a day or two, although weak.

Severe cases, the vomiting and purging cease after some hours, but the patient remains weak, with irritable stomach and bowels for a week or two.

Grave cases, the true cholera type, recover from the prostration very gradually; reaction coming on slowly and usually passing into a typhoid condition of some weeks' duration.

Diagnosis. *Asiatic cholera* and cholera morbus are easily confounded during an epidemic of the former, and there are no positive points of discrimination, unless the *comma bacilli* of Koch are proven to be always in the true cholera stools.

Irritant poisons, such as tartar emetic, elaterium, or other substances, cause vomiting and purging, similar to cholera morbus, and are only discriminated from it by the clinical history and cause.

Prognosis. In the majority of cases favorable. The mortality is about five per cent.

Treatment. *At once*, regardless of the cause, a hypodermic injection of *morphinæ sulph.*, gr. ⅛–⅓, and *atropinæ sulph.*, gr. $\frac{1}{120}$, to be repeated in half an hour if no improvement; for patients who object to the hypodermic mode, *opium* in some form by the mouth or rectum, giving the preference to the liquid preparations.

Camphora and *opium* combined often act well, or the "enteric mixture" mentioned on page 98, and if much depression, small doses of *brandy* or *dry champagne*.

The *intense thirst* must not be gratified by the use of liquids, but small *pellets of ice* by the stomach are grateful.

If the vomiting and purging continue, make use of—

℞. Bismuth subnit., ... gr. xx
Acid. carbol., ... gr. ⅙
Glycerini, ... gtt. xx
Aquæ, ... ℥iv. M.

Every hour in water.

If the vomiting is so severe that no opportunity occurs for the medicament to come in contact with the gastric mucous membrane, an enema of *chloral*, gr. x–xv, in some demulcent with *tinctura opii deodorata*, ♏x–xx, acts often like magic in quieting the distress of the tortured patient.

The closer the case approaches the true cholera type, the more severe are the *muscular cramps*, and their treatment is indicated. Prof. Da Costa suggests—

℞. Chloral, ... ℥iv
Cosmoline . . . . . ℥j. M.
To be rubbed over the affected muscles.

Dr. Bartholow suggests—

℞. Chloral., ... ℥iij
Morphinæ sulph., ... gr. iv
Aquæ, ... f℥j. M.
Sig.—*Twenty minims*, hypodermically, repeated p. r. n.

Locally, *sinapis* in the form of poultices or the dry powder, should be applied to the abdomen, or *terebinthina* stupes, or the hot water bag.

The after treatment depends upon the symptoms; generally an *acid mixture* and a *regulated diet*, with tonic doses of *quinina*, are indicated.

ENTERO-COLITIS.

Synonyms. Inflammatory diarrhœa; ulcerative entero-colitis.

Definition. A catarrhal inflammation of the lower portion of the small—ileum—and the upper portion of the large intestines, with a great tendency to ulceration of the intestinal glands if the catarrh becomes chronic; characterized by moderate fever, nausea, vomiting, diarrhœa, swollen abdomen, pain and emaciation. A common disease of childhood.

Causes. Improper and indigestible food; summer temperature; impure air; uncleanliness; exposure to cold and damp air.

Most commonly a disease of childhood.

Forms. Acute and chronic.

Pathological Anatomy. *Acute variety;* hyperæmia, swelling, œdema and softening of the mucous membrane of the lower portion

of the small and the upper portion of the large intestines, with hyperplasia of the intestinal follicles, their excretory follicles enlarged and tumid, readily distinguished as grayish or blackish points in the middle of the glands; the patches of Peyer are also enlarged, tumefied, and project above the level of the surrounding mucous membrane, the orifices of the follicles appearing as dark points; these patches often have an ulcerated appearance, but upon close examination such is found not to be the case.

Chronic variety; the thickening and infiltration have extended to the submucous and muscular coats, followed by induration of the tissues, so that the walls of the intestines are often abnormally rigid. Ulceration occurs, which extends through the entire thickness of the membrane. "These ulcers, when isolated, are from one to one and a half lines in diameter, oval or circular in shape, and either have sharp-cut edges, as though the piece of mucous membrane had been cut out with a punch, or the mucous membrane bounding them is undermined." The small ulcers often coalesce, so that large, irregular ulcerated patches are formed, having for their base the submucous or muscular coats, and have a grayish-white color.

The mesenteric glands are enlarged, but seldom, if ever, undergo ulceration.

Symptoms. *Acute form;* may develop slowly, with restlessness and fretfulness, or suddenly with *feverishness*, *loss of appetite*, *thirst*, *nausea*, moderate *vomiting*, and abdominal *pain;* or *diarrhœa* may be the first indication of illness on the part of the child. Regardless of the character of the onset, the *stools* soon present the characteristic appearance; they are *semi-fluid*, heterogeneous, *greenish*, *acid*, mixed with *yellowish fragments* of ordinary fæces, and *undigested casein*, termed the "chopped spinach" stools. The *abdomen* is *enlarged* and *tender*.

Emaciation is marked in proportion to the severity of the symptoms; in marked cases the child is reduced to a condition of the greatest debility within a very few days.

Chronic form, or ulcerative entero-colitis, usually follows the acute form, the character of the symptoms being less severe, but decidedly persistent, the strength fails, the temper is very irritable, the complexion grows dark, sallow and unhealthy, the skin dry and harsh, and in consequence of the marked emaciation, either hangs in folds around the shrunken limbs, or is drawn tightly over the joints; the

abdomen is enlarged and tender, the stools numbering from six to a dozen during the day and night, consisting of the products of an imperfect digestion mixed with mucus, serum, pus, and oftentimes blood, having a semi-fluid consistency, and an extremely offensive odor. Ulcerative stomatitis is a frequent complication adding to the discomfort of the patient.

Duration. *Acute form*, from ten days to about two weeks, subsiding gradually; *chronic form*, from one to two or three months, or even longer.

Diagnosis. The acute form can hardly be mistaken for any other condition, if the characteristic stools and other abdominal symptoms are present. The chronic form has been frequently mistaken for the diarrhœa of tuberculosis, an error that can hardly occur if a physical examination of the chest has been made.

Prognosis. Always a very serious malady, and proves fatal if it attacks the weak during midsummer, or when surrounded by unfavorable hygienic conditions; in vigorous children, who have passed through their first dentition, the prognosis is quite favorable.

Treatment. For the *acute form*, restricting the amount of food for the first few days is of importance. Fresh, pure air, cleanliness and rest are also of great importance.

Any one of the following formulæ may be used with advantage:—

℞. Salol, ... gr. ½-j-ij
Bismuthi subnit., ... gr. v. M.
Ft. chart.

Sig.—Such a powder every two hours.

Or—

℞. Hydrargyri chlor. mite, ... gr. ½
Pulv. ipecac., ... gr. ½
Pulv. opii, ... gr. ½
Cretæ præparat., ... gr. xxiv. M.
Ft. chart. No. xij.

Sig.—One every two or three hours, to child of one year.

Many cases do well with *pulvis kino comp.*, others with minute doses, frequently repeated, of *acidum lacticum*, and many others with *bismuth*, gr. x–xv, in milk, every few hours, to quite young children.

Locally, warmth to the abdomen, with mustard, turpentine stupes or the *spice poultice*, made as follows: *cloves, allspice, cinnamon, and anise seeds*, each half an ounce, pounded (not powdered) in a mortar,

and placed between two pieces of coarse flannel about six inches square and quilted in; soak this for a few minutes in hot brandy or hot whisky and water, equal parts, and apply to the abdomen, heating again as it becomes cool.

Chronic entero-colitis. Few conditions will tax the skill and patience of the physician to the same degree as will this variety.

First and foremost the diet must be carefully regulated. Milk alone, or predigested, or with lime-water, in the majority of cases is the best article of diet. Should it disagree, then recourse must be had to some of the prepared foods, such as Mellin's, Horlick's, Ridge's, Blair's prepared wheat, and many others; often the one agreeing with one patient will not agree with another.

After caring for the diet, then the hygiene of the patient requires attention. Cleanliness, such as daily warm-baths, often adding with advantage sea-salt. Rest in bed for an hour or more after meals if the patient cannot be kept continually in bed. The air of the room should be fresh and pure.

Amongst drugs may be mentioned *bismuth* and *pepsinum* or *Salicinum.*

Or—

℞. Argenti nitrat., ... gr. j–iss
Acid. nitric dil., ... ♏xij
Mucil. acaciæ, ... f ℥ ss
Aq. cinnamomi, ... ad. f ℥ iij. M.

SIG.—Teaspoonful, diluted, every three or four hours.

Or—

℞. Acidi carbolici, ... gr. $\frac{1}{12}$–$\frac{1}{8}$
Tincturæ iodi, ... gtt. j–ij
Aquæ menthæ, ... ℥ j. M.

SIG.—Every three or four hours.

Or—

℞. Tinct. calumbæ, ... f ℥ iij
Liq. ferri nitratis, ... ♏xxvij
Syrupi zingib., ... f ℥ iij. M.

SIG.—One or two teaspoonfuls, according to age, every three or four hours.

Or—

℞. Quininæ muriat., ... gr. xxiv
Acid. tannici, ... gr. viij
Syr. limonis, ... f ℥ ij
Aq. chloroformi, ... ad. f ℥ iij. M.

SIG.—Teaspoonful every two hours.

CHOLERA INFANTUM.

Synonyms. Choleriform diarrhœa; summer complaint.

Definition. An acute catarrhal inflammation of the mucous membrane of the stomach and intestines, together with an irritation of the sympathetic nervous system, occurring in children during their first dentition; characterized by severe colicky pains, vomiting, purging, febrile reaction, and prostration.

Causes. Age; bad hygiene, or as it is now entitled, "civic malaria;" continuous high temperature; improper food; dentition; constitutional as in the feeble, delicate, nervous, or irritable.

Pathological Anatomy. Resembles closely, if not identical with, the phenomena of catarrhal gastritis and enteritis, together with a powerful irritation of the fibres of the sympathetic system.

Symptoms. The onset is *sudden* in a child previously well, or in a child suffering from a bowel affection.

Begins with *vomiting*, *purging*, abdominal *pain*, *fever*, *rapid pulse* and *intense thirst*.

The *vomited matter* is partly digested food, sero-mucus, and finally bilious, and is accompanied with distressing *retching*. The *thirst* is a marked phenomenon of the disease, and ice and water will be taken incessantly, although rejected only a few moments after.

The *stools* are first partly fecal, but soon watery or serous, soaking the clothing, leaving a faint greenish or yellowish stain; their odor is musty, at times fetid; their number is from ten to twenty in the day.

Pains precede the vomiting and purging, colicky in character.

The *fever* begins at once, the temperature varying from 101° to 105°, with morning remissions. The *pulse* is rapid and feeble, ranging from 130 to 160.

These symptoms continue but a few hours, before *rapid wasting* ensues, the body shrinks, the eyes are sunken and partly closed, the mouth partly open, the lips, dry, cracked and bleeding. The child, at first *irritable* and *restless*, passes into a semi-comatose condition, the pulse becoming more and more feeble, the surface has a clammy coldness, the contracted pupils not responding to light, and the stupor deepens, death soon following, or the symptoms slowly ameliorate, convalescence being slow and tedious.

Diagnosis. The *entero-colitis* or inflammatory diarrhœa of child-

hood is constantly being mistaken for cholera infantum. The symptoms of the former are, gradual onset, with *fretfulness, loss of appetite, feverishness, nausea,* and moderate *vomiting,* soon followed by *diarrhœa,* the stools being semi-fluid, greenish, mixed with yellowish particles of fæces and undigested casein, with a sour odor, the "chopped spinach" stools, the *abdomen* distended and *tender,* moderate *fever* and *thirst,* and having a *duration* of about two weeks.

Prognosis. Difficult to predict the result, and so care must be used in giving a prognosis. The duration of the choleraic symptoms is short, under five days, but relapses are common, and the sequelæ are protracted.

Treatment. Change of air of the greatest benefit. Restricted diet, and particularly for first few days, using *brandy,* gtt. v–x, in *barley water* at frequent intervals.

For the *vomiting,* large doses of *bismuth;* or *chloral,* gr. j–iij, by mouth in demulcent, or double the amount by the rectum, or one of the following :

℞. Bismuthi subnit., ... ʒij
Acid. carbolici, ... gr. j
Mist. acaciæ, ...
Aq. menth. p., ... āā . . . . . fʒj. M.
SIG.—Teaspoonful every half hour, hour, or two hours.

Or—

℞. Hydrargyri chlor. mit., ... gr. $\frac{1}{20}$
Bismuth. subnit., ... gr. ij–v. M.
SIG.—A powder every half hour.

Good results are reported from *bismuthi salicylas,* gr. ij, with sugar of milk every hour or two, or *salol* gr. i-ij every two or four hours

Cases that have resisted other remedies have rapidly improved under the following :—

℞. Tinct. verat. alb., ... fʒij
Morphinæ acetat., ... gr. ij
Spts. vini gallici, ... fʒij. M.
Et adde ʒj to
Aquæ calcis,
Aquæ menthæ, ... āā . . . . . fʒj. M.
SIG.—One teaspoonful, repeated every hour, if needed.

If the fever is high, sponging with alcohol and water, the cold pack or the cool bath can be used first, and afterwards using stimulants.

For *depression*, regulated nursing or feeding every two hours, and water or ice to quench the intense thirst, and *cognac brandy*, gtt. v–x, every hour or two, in water, by mouth or in warm enema.

Locally; over epigastrium, mustard or a spice poultice, or turpentine stupes.

If the *nervous symptoms* become aggravated, small dose of *potassii bromidum*, or *valerian*, which "reduces the reflex excitability, motility and sensibility," is indicated.

ACUTE DYSENTERY.

Synonyms. Colitis; ulcerative colitis; bloody flux.

Definition. An acute inflammation of the mucous membrane of the large intestines, either catarrhal or croupous in character, followed in some cases with ulceration, characterized by fever, tormina, tenesmus and frequent, small, mucous and bloody stools.

It occurs either *sporadically*, *endemically* or *epidemically*.

Four clinical forms are described: acute catarrhal; amœbic or tropical; croupous or diphtheritic; chronic dysentery.

Causes. *Sporadic*, *endemic* or *catarrhal* dysentery, prevails most extensively in the summer and early autumn months. Sudden atmospheric changes, such as hot days and cool nights. Malaria has some connection with its causation. Errors in diet not a cause. The drinking water may be the means by which the poison gains entrance to the system.

Amœbic or *tropical dysentery*, characterized by the presence in the stools of the *amœba coli* (Lösch) or *Amœba dysenterica* (Councilman and Lafleur). This variety is often epidemic in the tropics.

Croupous or *diphtheritic dysentery* is often epidemic; frequently occurs as a terminal event in acute and chronic diseases. The causes are much those of the acute catarrhal form, acting upon a depressed system. The *Amœba coli* may be seen in the stools.

Dysentery is not contagious, but is infectious.

Pathological Anatomy. *Catarrhal dysentery;* congestion, swelling and œdema of the mucous membrane and sub-mucous tissue of the large bowel, with an over-production of mucus; the fol-

licles are enlarged, from retention of their contents, the result of the swelling; the congested vessels often rupture; the mucous membrane softens in patches, and is detached, forming ulcers. Recovery follows, if the destruction of tissue is small, smooth cicatrices, minus gland stricture, marking the site.

Amœbic or *tropical dysentery*, the lesions are also in large intestines and sometimes in lower portion of the ileum. Abscess of the liver is a common complication.

"The lesions consist of ulceration, produced by preceding infiltration, general or local, of the submucosa, the general infiltration being due to an œdematous condition, the local to multiplication of the fixed cells of the tissue. In the earliest stages these local infiltrations appear as hemispherical elevations above the general level of the mucosa. The mucous membrane over these soon becomes necrotic and is cast off, exposing the infiltrated submucous tissue as a grayish-yellow gelatinous mass, which at first forms the floor of the ulcer, but is subsequently cast off as a slough." (Osler.)

Croupous or *diphtheritic dysentery* begins with intense congestion, swelling, and œdema of the mucous and sub-mucous tissue, with extravasations of blood and the whole mucous membrane covered with a firm, fibrinous exudation; the mucous membrane softens and sloughs, leaving large ulcers and gangrenous spots. If recovery occur, large cicatrices form, which narrow the calibre of the intestinal tube.

The mesenteric glands enlarge, soften, and abscesses form in them; the liver becomes the seat of small abscesses, from embolic obstruction of the radicles of the portal vein; the heart muscles are flabby and more or less fatty.

Symptoms. *Catarrhal form* begins gradually, with *diarrhœa*, *loss of appetite*, *nausea*, and *very slight fever*, which continues for two or three days, when the *true dysenteric* symptoms develop, to wit, *pain* on pressure along the transverse and descending colon, *tormina* or *colicky pains* about the umbilicus, *burning pain* in the rectum, with the sensation of the presence of a foreign body and a constant desire to expel it, or *tenesmus;* the *stools* for the first day or two contain more or less fecal matter, but they soon change to a *grayish*, *tough*, *transparent mucus*, containing more or less *blood* and *pus;* during the *tormina*, *nausea* and *vomiting* may occur; the urine is

scanty and high colored; the number of stools vary from five to twenty or more in the twenty-four hours.

The *duration* is about *one week*, the patient being much *emaciated* and *enfeebled*.

Amœbic form begins gradually as the catarrhal form, or gradually as an increasing diarrhœa. Soon the *stools* become characteristic of the variety of the attack, being *frequent*, *bloody*, *mucoid*, but very *fluid;* as the disease progresses the stools become *yellowish-gray* and *liquid*, containing mucus, sometimes bloody. The number of stools varies from six to a dozen or more in a day. Actively moving *amœbæ* are found in the stools, disappearing as the stools become formed. *Fever* may or may not be present, or may come and go. Abdominal *pain* and *tenesmus* are present in the majority of cases.

The loss of flesh and strength is marked. Abscess of liver and lungs are frequent and grave complications.

Duration from six to twelve weeks, recovery tedious owing to anæmia and loss of flesh.

In every endemic or epidemic of dysentery a number of *amœbic* cases will occur. During the past three years I have seen probably two hundred cases of dysentery, beginning as catarrhal, but in the midst of the endemic a number of amœbic cases occurred, the convalesence long outlasting the catarrhal variety.

The *croupous* or *diphtheritic form* sets in suddenly, the *stools* being more frequent, containing more *blood* and *pus*, with *patches of membrane*, even *casts of the bowel*, together with more or less *gangrenous mucous* membrane; *nausea*, *vomiting*, and great *prostration*, *cold skin*, *feeble pulse* and *emaciation* with *anxious expression*, the *odor* surrounding the patient being *fetid*.

The occurrence of this form as a termination of Bright's disease, lung and heart disease, must be borne in mind.

The *duration* of the grave symptoms is three or four days, when collapse and death occur, or slow convalescence begins, continuing for weeks.

Chronic Dysentery. This is really a continuation of the acute disease, the symptoms continuing the result of the ulcerated mucous membrane, or the cystic degeneration of the glandular elements of the large gut (Woodward). Rarely, dysentery develops subacutely, and thus is almost chronic from the beginning. There is seldom a

characteristic stool, little colicky pain and little or no tenesmus, but a progressive loss of flesh with loose bowels, the stools containing mucus, little or no blood, undigested food, and are frothy. The number varies from two to a dozen in the day. Acute exacerbations are frequent. Duration, often months or years.

Complications. *Peritonitis; hepatic abscesses; phlebitis* of the intestinal veins; *intestinal perforation.*

Diagnosis. *Enteritis* lacks the tenesmus and characteristic stools.

Peritonitis, when idiopathic, shows higher temperature, greater tenderness and constipation.

Chronic dysentery is difficult to distinguish from chronic diarrhœa.

Prognosis. *Catarrhal* form favorable, save in those debilitated.

Amœbic form; the mortality is higher than in catarrhal form, and in favorable cases the convalescence is slow.

Croupous form; the prognosis is always grave, for, if recovery does occur, the bowels may be crippled from loss of structure, or from narrowing of its calibre, the results of cicatrices.

Treatment. Keeping in mind the following from Osler's Practice, no case of dysentery, however mild, should be lightly considered: "Dysentery is one of the four great epidemic diseases of the world. In the tropics it destroys more lives than cholera, and it has been more fatal to armies than powder and shot."

The patient should be confined to bed in even the mildest attack, and the stools removed at once and *disinfected.* In fact, the bed-pan or other vessels should constantly contain a solution of *ferrous sulphate* (copperas) sufficient to cover the expected stool.

The diet to be of the most nourishing yet bland character, adding stimulants if much prostration.

The most frequently used drug, and in many cases by far the best, is *opium*, alone or combined with one or more astringents:—

℞. Ext. opii, ... gr. ss
Plumbi acetat., ... gr. ij. M.
Every two hours.

Or—

℞. Pulv. opii, ... gr. ss
Plumbi acetat., ... gr. ij
Pulv. ipecac., ... gr. ¼. M.
Every two hours.

I have frequently seen the character of the stools change within twenty-four hours with the *Mistura enterica*, viz.:—

℞. Acid. sulph. dil., ... f℥ iss
Tinct. opii deodorat., ... f℥ j
Spts. camphoræ, ... f℥ j
Tinct. capsici, ... f℥ ss
Spts. chloroformi, ... f℥ ss
Spts. vini gallici, ... f℥ iss. M.

Sig.—One teaspoonful every two or three hours, diluted.

In more than one instance I have seen a severe attack of acute dysentery succumb to *morphina sulphas*, gr. ¼–½, three or four times daily hypodermically, within three or four days. For the intense tormina and tenesmus no remedy is comparable with morphia by the hypodermic method.

If the case is seen early, the very best prescription possible is—

℞. Magnesii sulph., ... ℥ j
Acid. sulph. dil., ... ♏ x
Tinct. opii deodorat., ... ♏ x
Aquæ chloroformi . . . . . ad. ℥ ij M.

Every two or three hours, until fæces appear in the stools, when small doses of *opium* and *quinina* may be used.

Bismuth subnit., gr. xxx, every two or three hours, or *bismuth salicylas*, gr. xv, every two or three hours, are often successful.

Dr. Loomis speaks strongly of *ipecacuanha*, gr., ¼ every half hour, with sufficient opium to secure quietness. The large doses of ipecacuanha recommended I have had no experience with.

Ringer recommends *hydrargyri chloridum corrosivum*, gr. $\frac{1}{100}$, every hour or two, which "rarely fails to free the stools from blood and slime, although in some cases a diarrhœa of a different character may continue for a short time longer."

In children the following combination is efficacious:—

℞. Pulv. ipecacuanhæ, ... gr. ¼
Bismuth subnit., ... gr. v–x
Cretæ præp., ... gr. iij. M.

Sig.—Every two hours.

Washing out the rectum with either tepid, hot, cold or iced water, as suggested by Prof. DaCosta, adds greatly to the patient's comfort and to the decrease of the inflammatory process. Ice suppositories are often soothing.

A one or two per cent. solution of *creolin* (one-half pint) as an enema often rapidly lessens the number of stools and the tenesmus. Dr. H. C. Wood recommends iodoform suppositories.

"In the cases of amœbic dysentery we have been using at the Johns Hopkins' hospital, with great benefit, warm injections of quinine in strength of 1 to 5000, 1 to 2500, and 1 to 1000. The amœba are rapidly destroyed by it." (Osler.)

Locally, poultices, stupes, etc., do no good, but if they are agreeable to the patient, they may be allowed, as they do no harm.

Chronic dysentery. A carefully selected but nourishing diet, change of scene and some of the following remedies: *Bismuth*, gr. xxx, t. d.; *terebinthina*, ♏x, every three or four hours; *argenti nitras*, gr. ⅛–⅓, three or four times daily; or ℞. *Cupri sulphas*, gr. ⅙; *ext. opii* aq. gr. ¼–½; *ext. nucis vomicae*, gr. ⅛, in pill, four times daily.

Chronic dysentery is sometimes kept up by a trifling patch of inflammation or ulceration in the rectum or sigmoid flexure. There occur two or three loose stools in the morning, and then a comparatively comfortable day. The stools are preceded by some colicky pain across the lower part of the abdomen and in the line of the large bowel. The general condition, other than the anæmia and weakness, of the patient is good. Drugs by the mouth are useless to control these cases; the medication must be made directly to the diseased part. Injections of *argenti nitras*, gr. iv to xx or xxx to the pint are curative; the silver may be combined with opium (℞. Argent. nitrat., gr. j; tinct. opii deodorat., ♏xv–xx; aquæ amyli, ʒiv, M).

During the convalescence from all varieties of dysentery, tonics are indicated; (℞. Strychninæ sulph., gr. ⅓; acid. hydrochlorici dil., fʒij; tinct. gentian comp. q. s., ad fʒiv, M. S.—One teaspoonful before meals in water). A course of *oleum morrhuæ* with *syr. calcii lactophosphatis*, should be used if much emaciation.

TYPHLITIS.

Synonyms. Inflammation of the cæcum; typhlitis stercoralis.

Definition. A catarrhal inflammation of the mucous membrane of the cæcum and ascending colon; characterized by pain, tenderness, constipation, and in certain cases a characteristic vomiting.

Causes. In a majority of cases *mechanical*, due to the accumulation of fæces in the cæcum.

Pathological Anatomy. Similar to the catarrhal inflammation of dysentery.

Symptoms. *Pain* and *tenderness* in the right iliac fossa and along the ascending colon, with some *prominence* of this region; the *bowels* are distended with gas (*meteorism*) and are usually *constipated*, or small liquid stools may occur from time to time, due to the accumulation of hardened fæces in the sacculated periphery of the cæcum, leaving a central canal through which the liquid contents of the upper bowel can pass.

In *severe cases*, "the local *pain*, *tenderness* and *swelling* are greater, there are *impaction* of *fæces* and *no movements*. There are decided *fever*, *restlessness* and also *nausea* and *vomiting*. The *vomited matters*, at first the contents of the stomach, then the duodenum, with bilious matter, and ultimately, if the impaction persists, of material having the odor of fæces. With these symptoms occur *great depression of the vital powers*. *Peritonitis* is finally developed by contiguity of tissue or by rupture of the bowel."

The *temperature* in even mild cases is one or two degrees above the normal and in a fair majority of cases an *eruption* is seen upon the abdomen, consisting of one or two dark red spots the size of a pinhead, which are of short life and disappear on pressure.

Duration. The *mild form* form lasts about one week. The *severe form* may terminate in subacute peritonitis, continuing about two weeks.

Diagnosis. The *mild form* is distinguished from other intestinal affections by the localized pain, tenderness and prominence, and the constipation.

The *severe form* can only be distinguished from the other forms of *intestinal obstruction* by the history of the case and attack, and the results of treatment.

Prognosis. *Mild form* favorable. *Severe form* grave, although not necessarily fatal.

Treatment. The patient should be kept in bed, and placed on a strictly milk diet in very limited amounts for a few days.

Two indications are to be met, which are seemingly opposed to each other: *first*, the removal of the accumulation of fæces, which in the majority of cases has caused and still maintains the inflammation; *second*, to retard the inflammation resulting from the presence of the fecal mass.

If the pain and suffering be intense, at once administer a hypodermic injection of *morphia*.

The two indications above named are met by the use of the following:—

℞. Magnesii sulph., ... ℥xij
Acid. sulph. dil., ... f℥ij
Tinct. opii deodorat., ... f℥iv–f℥vj
Spts. chloroformi, ... ℥ij
Aquæ menth. pip., ... ad q.s. f℥iij. M.

Sig.—One teaspoonful every hour, diluted.

If it be true that calomel has a specific action upon the lower portion of the small bowel, increasing the secretion from the glands located there, then the following should be useful in some cases:—

℞. Hydrargyri chlor. mite, ... gr. ij
Sodii bicarb., ... gr. xxiv
Sacc. lac., ... ℥ss.
Ft. chart. No. xij. M.

Sig.—One every hour till twelve taken, followed by f℥iv *hot* Hunyadi-Janos water.

In *severe cases*, begin an *opium* influence at once, by hypodermic injections of *morphina* guarded with *atropina*, continued until all symptoms of inflammation have subsided, when attempts to remove the accumulated fæces may be made by *irrigation of the bowel* with warm soapsuds, and the cautious administration of *magnesii sulphas* in drachm doses, every two hours.

Locally, hot, dry applications, or the ice bag.

PERITYPHLITIS.—APPENDICITIS.

Synonyms. Perityphlitic abscess; suppurative appendicitis; pericæcal abscess.

Definition. *Perityphlitis*; an acute inflammation of the connective tissue around the cæcum (with localized peritonitis) leading to the formation of an abscess.

Appendicitis. An acute or sub-acute inflammation of the appendix vermiformis, involving the surrounding tissues (with a localized

peritonitis) leading to perforation of the appendix and the development of an abscess.

Causes. The great majority of cases of perityphlitis are secondary to inflammation of or perforation of the vermiform appendix—appendicitis. Have seen two cases of true perityphlitis the result of exposure to cold and wet.

Appendicitis usually results from the presence of a foreign body in its canal, consisting of inspissated fæcal masses, which, becoming incrusted with lime salts, are termed "fæcal calculi," and becoming rounded in shape closely resemble a cherry-stone, for which they have been mistaken. Foreign bodies, particularly seeds of fruit, sometimes, but not so often as is believed by the laity, gain access to the appendix and produce inflammation leading to perforation. Torsion of the appendix is also among the infrequent causes. The disease is more common in males than females. Occurs most frequently between the ages of ten years and thirty years. Relapses are fairly frequent in cases not progressing to perforation.

Symptoms. The symptoms of the two conditions are much alike; begins with a *feeling* of *weight, soreness* and rapidly developing and *severe pain* in the lower right abdomen, accompanied with *nausea* and vomiting. The pain is increased by lying on the left side, the right leg is drawn, the *abdomen* becomes *tense*, *prominent* and *tender*, with the progressive development of a *hard swelling* in the right *iliac region*. The *temperature* at the onset is from 99°–100°, and may or may not be preceded by a chill; the *pulse* 80, full and strong; the tongue coated with red tips, the bowels costive. In addition to the persistent, localized pain, occurs severe colicky paroxysms, which may shoot into the hip and thigh. The expression of the patient is pinched and denotes suffering. The special tendency of the disease is toward *suppuration*, which is announced by *irregular chills*, *feverishness*, the temperature shooting suddenly to 101°–103°, and *sweats*, and a feeling of *tension* and *throbbing*. Its development is slow, and if associated with *typhlitis* the symptoms of that affection are added.

Complications. Perforation of the appendix. Local or general peritonitis.

Diagnosis. Differs from *typhlitis* by the absence of the colicky pains, dyspeptic symptoms, costive bowels and tympanites preceding

the development of a tumor; in perityphlitis the tumor is present with the development of the symptoms.

Psoas abscess is not associated with intestinal symptoms, and the discharge is free from a fecal odor. *Renal* and *ovarian* tumors should not be sources of error. The possibility of hernial tumors must not be overlooked.

Treatment. If not associated with typhlitis, the treatment is to allay the inflammation in the first stage, by either *ice, locally*, or freely *painting* with *tinctura iodi;* if suppuration is evident, hasten by hot applications, and follow by evacuation of the pus with the *aspirator* or a *free opening*, conjoined with the use of *opium* and *quinina.*

If the disease is not rapidly controlled, a *laparotomy* with *strict antiseptic* precautions is indicated.

PROCTITIS.

Synonyms. Catarrh of the rectum; dysentery; rectitis.

Definition. A catarrhal inflammation of the mucous membrane of the rectum and anus; characterized by pain, tenesmus and frequent stools of hardened fæces, or of mucus, pus and blood.

Causes. Chief cause constipation; also sitting on damp ground or stone steps; habitual use of enemata or of purgatives; diseases of the liver; hemorrhoids.

Pathological Anatomy. Similar to those occurring in catarrhal dysentery.

Symptoms. Uneasy sensation and *burning in the rectum*, with a constant desire for stool, or *tenesmus*, often so severe as to cause a *prolapse of the mucous membrane. The stools* may be either *hardened fæces* or *scybala* from the distended colon, which cause *intense pain* when they reach the rectum; or *the stools* may be of *mucus, muco-pus* or *bloody or blood-streaked.* Generally there are present *nausea*, especially during the tenesmus, *headache, feverishness* and *malaise.* In severe cases there is *strangury*, and with the tenesmus, *straining with urination.*

If the case be protracted and severe, inflammation of the connective tissue around the rectum occurs, causing *periproctitis*, which usually terminates in various kinds of fistulæ.

Complications. Periproctitis; peritonitis; hepatic abscesses.

Diagnosis. In *males*, the disease cannot be confounded with any other affection, save, perhaps, hemorrhoids. In *females*, displacements of the uterus may somewhat simulate the symptoms of proctitis.

Prognosis. Uncomplicated cases favorable. Either of the complications adds greatly to the gravity of the affection.

Treatment. In cases due to constipation the chief indication is to empty the bowels, using an enema of warm water and soap or *magnesii sulphas* (℞. Magnesii sulph., ℥ij; glycerini, ℥ss; aquæ bul., f℥iv. M.). *Irrigation* of the *bowel* with warm water once or twice daily assists in the liquefaction of the hardened fæces. Either enemata or suppositories of *glycerinum* should answer in certain cases.

Cases other than those due to constipation, *emollient enemata* and *opium*, one of the best being—

℞. Ol. olivæ, ... ℥ij
Tinct. opii deodorat., ... ♏xv. M.

The use of *hot injections* of an astringent character, such as hot, strong black coffee, from half pint to quart, as hot as will be tolerated by the rectum, as suggested by Dr. Pepper, is valuable in cases of irritable rectum with a disposition to looseness. In cases not benefitted by the hot injections, relief may follow the use of injections of water, say two ounces, as cold as can be borne without chilling; administered at bedtime, having it retained.

If symptoms of *periproctitis* occur, use *ice* to the parts, and if suppuration ensue, *evacuation* by a free opening and *quinina*.

INTESTINAL OBSTRUCTION.

Synonyms. Intestinal occlusion; strangulated hernia; invagination; intestinal stricture; ileus.

Definition. A sudden or gradual closure of the intestinal canal; characterized by pain, nausea, vomiting, constipation, and finally collapse.

Causes. The numerous causes are arranged as follows:—

1. *Accumulations within the bowel*, of hardened fæces, or foreign bodies.

2. *Strictures*, the result of cancer, ulceration, or cicatrices.

3. *Pressure against the bowel*, from peritoneal adhesions, tumors, and abnormal growths.

4. *Strangulations*, due to the numerous forms of hernia.

5. *Invagination* or intussusception, the most common.

6. *Twisting*, volvulus or rotation of the bowel.

Pathological Anatomy. *Invagination* is the form calling for special description here. It is usually caused by the lower portion of the ileum slipping down into the cæcum, as the finger of a glove might be invaginated, causing thus an actual mechanical obstruction; this is produced by a spasm of the ileum, whereby its calibre is greatly diminished, thus permitting its descent into the lower bowel. Resulting from this occlusion or compression, are congestion, inflammation, with secondary constitutional reaction and death, or more rarely the invaginated bowel sloughs off, and is voided by stool, union taking place at its site and recovery following.

Symptoms. The onset of the symptoms may be either *sudden* or *gradual*, and are as follows:—

Constipation, with more or less severe *colicky pains*, not relieved by either purgatives or injections; *feeling of weight* and *soreness*, with *distention* of the abdomen and *nausea* and *vomiting;* the symptoms all grow more pronounced, the *pain* becoming *violent*, *tenderness* in limited areas, the *vomiting* becoming *stercoraceous*, the abdomen hard and tense, the *eyes sunken*, the *pulse quick* and *feeble*, the *skin cold*, and covered with a clammy sweat. The above continue more or less pronounced for a week or ten days, when collapse and death occur, or more rarely there is a gradual return to health.

Cases occur rarely in which small, fecal, muco-purulent stools containing more or less blood exist, instead of constipation.

Diagnosis. One of the most difficult, and can only be solved by a careful study of the case along with the different causes producing the affection. The site of the occlusion can rarely be determined positively.

Intestinal obstruction may be mistaken for *intestinal colic*, *hernia*, *enteritis*, *peritonitis*, *hepatic* or *renal colic*.

Prognosis. Always grave, but guided by the cause. *Impacted fæces* favorable. *Invagination* less favorable, but recoveries occur; the longer the symptoms continue, the more favorable the outlook. *Strangulations* unfavorable, but many recoveries recorded. *Strict-*

ures, due to cancer, cicatrized ulcers and the like, are the most unfavorable.

Treatment. Stop all forms of purgatives as soon as the diagnosis of obstruction is determined.

Opium is indicated in all forms with pain, and is best administered in the form of *morphina*, combined with small doses of *atropina*, hypodermically.

The author has seen the most brilliant results follow the plan of *washing out the stomach* as suggested by Küssmaul, and with full doses of *atropina* hypodermically, for its action on intestinal peristalsis, and with electricity, one pole over abdomen, the other in rectum.

Cases resulting from *impacted* fæces are rapidly cured by the above plan combined with *irrigation* of the lower bowels with tepid soapsuds.

If *invagination*, raising the buttocks and lowering the chest, and repeated *injections* of *warmed oil*, are recommended.

Distention of the bowel by *pumping air* through long rectal tubes, or disengaging *carbonic acid gas* in the bowel, by first injecting a solution of *sodii bicarbonas*, and follow this with a solution of *acidum tartaricum*, about one drachm of each, pressure being made against the anus to prevent escape; but the danger of rupture of the bowel must not be overlooked.

Flatulent distention can be removed by the long *aspirator* needle.

Laparotomy is no doubt the operation of the future, when our means of diagnosticating the location of the trouble is more exact.

The *nutrition* of the patient is best attained by injections of either peptonized foods or defibrinated blood, or both.

INTESTINAL PARASITES.

TAPEWORMS.

Varieties. *Tænia solium; Tænia saginata; Bothriocephalus latus.*

Causes. The *Tænia solium*, the "armed tapeworm," is the most common in this country. It is derived from the embryos contained in *pork*, known as the *cysticercus cellulosus.*

The *Tænia saginata*, the "unarmed tapeworm," a not uncommon variety, is derived from the embryos contained in *beef*, known as *cysticercus bovis.*

The *Bothriocephalus latus*, also an "unarmed tapeworm," the largest parasite infesting man, is supposed to be derived from an embryo found in *fish.*

The embryo or ovum is introduced into the intestinal canal with the food and drink. The parasite reaches its final growth after its entrance into the intestines.

Those handling fresh meats or eating uncooked animal food are most liable to be affected.

Uncleanliness is also an important factor.

Description. The *tænia solium* is from six to thirty feet in length, has a globular head, or scolex, a slender neck connecting its numerous *flat segments* or *joints.* The head, or scolex, measures about $\frac{1}{40}$ of an inch, has a double circle of hooklets,—whence the term "armed tapeworm,"—and is provided with from two to four suckers. The segments or joints (*strobila*) are flat, and vary from one-eighth to one-half an inch in length, and each contain both male and female sexual organs, the uterus being a long, numerously branched tube, in which the ova develop; the ova measure about $\frac{1}{1700}$ of an inch in diameter. An ordinary tapeworm contains some five million ova.

The parasite is firmly imbedded in the mucous membrane of the upper third of the small intestines by its hooklets and suckers.

The lower or terminal *segments* represent the adult and complete animal, and are termed the *proglottides*, which separate from the parasite and are discharged either alone or with the feces.

The *tænia saginata* is from ten to forty feet in length, has a

rounded or oval-shaped head, measures about $\frac{1}{10}$ of an inch and has four strong and prominent suckers, but *no* hooklets,—whence the term "unarmed tapeworm;" the neck is short and thick and the *segments* are larger, stronger and thicker than those of the T. solium.

The *Bothriocephalus latus* is the largest of the three Cestoda, the length ranging from fifteen to sixty feet, the head oval, measuring about $\frac{1}{10}$ of an inch, a short neck, the segments or joints being nearly three times as broad as they are long. Its color is a dull, bluish-gray. Zoölogically considered, this variety is not a true tapeworm.

Symptoms. Not unfrequently a *tænia* produces no symptoms whatever.

Usually, however, there are *colicky pains* throughout the abdomen, *inordinate appetite*, *disorders* of *digestion*, *emaciation*, *constipation*, attacks of *cardiac palpitation*, *faintness*, disorders of the special senses and *pruritus* of the anus and nose. Any or all of these symptoms may be present.

A large meal will often remove the majority of the symptoms present.

In a large number of cases the discovery of the *segments* is the first intimation of the presence of the parasite.

Treatment. A number of remedies—termed tæniafuges—are used more or less successfully for the expulsion of the tapeworm, to wit: *extractum granati rad. cort. fluidum*, ʃ℥ss–ij, or a *decoctum granati rad. cort.* (℥ij bark of root, aquæ Oj), wineglassful every hour until all is taken, as suggested by Prof. Bartholow; or *oleoresina aspidii*, ℥ss doses repeated, or *oleum pepo express.*, ʃ℥j–iv, followed by *oleum ricini*. *Creosotum* has been successful in a number of cases. Several cures are reported from *glycerinum* ʃ℥ij–℥j, repeated p. r. n.

A much pleasanter remedy is *pelletierine*, the active constituent of *granatum*, used in the form of the *tannate*, gr. x–xx, or *Tanret's solution of pelletierine*.

Cases which resist these means are often cured by the following:—

℞. Chloroformi,
Ext. aspidii fld., ... āā . . . . . ʃ℥j
Emul. olei ricini, ... (B. Ph.) . . . . ʃ℥iij. M.

Sig.—To be taken in the early morning; no food until after thorough action of the bowels.

An important precaution in the management is close attention to the "preparatory treatment" rendered essential to remove the mucus in which the *head* (scolex) is imbedded. It consists in the administration of a thorough purgative for one or two days, and a light diet, such as milk and broths, preceding the use of the tæniafuge.

ROUND WORMS.

Varieties. *Ascaris lumbricoides; Oxyuris vermicularis.*

Causes. The *ascaris lumbricoides* is one of the most common of the parasites affecting the human family, and develops in the intestines, either after the entrance of the *ova* of the same, or from the so-called "intermediate parasites." Their entrance is effected by means of the food and drink.

The *oxyuris vermicularis* develops in the large intestines, from either its peculiar ova, or the so-called "intermediate parasite," these finding their way into the bowel with the food and drink, or by direct contact.

Description. The *ascaris lumbricoides*, or the *round worm*, is of a brown color, a cylindrical *body*, from ten to twenty inches in length, and from an eighth to a fourth of an inch in circumference; the *head* terminates in three semilunar lips, each having about two hundred teeth. The *ova* are oval-shaped, are produced in immense numbers, some sixty million in a mature female, have wonderful vitality, resisting extreme heat or cold.

The *round worm* inhabits principally the *small intestines*, although it often migrates to other parts. They are found in numbers from one to several hundred.

The *oxyuris vermicularis*, *thread* or *seat worm*, resembles an ordinary piece of white thread, measuring from a sixth to a half inch in length, the *head* terminating in a mouth with three lips, the *tail* terminating as a sharp point. The *ova* are oval, produced in large numbers, each female containing about ten thousand, and are surrounded by a stout envelope, which increases their vitality.

The *seat worm*, as its name indicates, inhabits the *large* intestines, especially the rectum, although they frequently migrate to the sexual organs. They vary in number, sometimes the parts frequented being entirely covered.

Symptoms. The *ascaris lumbricoides*, or *round worm*, may be

present in great numbers and yet produce no characteristic symptoms other than *gastric* and *intestinal irritation*, such as picking the nose, foul breath, colicky pains, nausea and vomiting, diarrhœa and disturbed sleep, such as tossing from side to side of bed and grinding the teeth. Any or all of these symptoms may be present or absent; a positive diagnosis may be based upon the passage of the parasite.

The *oxyuris vermicularis*, or *seat worm*, produces *intense itching* about the anus, with a desire for stool, the passages often containing much mucus, the result of the irritation produced by their presence. Should they migrate to the sexual organs, intense itching of these parts results, which, unless speedily corrected, leads in children to masturbation.

Treatment. The *ascaris lumbricoides* are readily removed by the following "worm powder:"—

℞. Santonini, ... gr ¼–j–ij
Hydrargyri chlor. mitis, ... gr. ½–ij. M.
Ft. chart.

Sig.—At bedtime, followed by a dose of *oleum ricini* before breakfast.

For the *oxyuris vermicularis* the above *santoninum* powder, with the use of *enemata* of *quassia*, *alumen*, *sodii chloridum*, or ℞., *acidi carbolici*, gr. v–x, aquæ, Oj, according to the age, the injection not to be retained; or an enema of a weak solution of corrosive sublimate (1 to 10,000). Always precede any of the medicated enemata by a large injection of water to unload and clear the rectum. Washing the anus and external genitals with a solution of *acidum carbolicum* should also be employed. For the pruritus ani apply a little *unguentum hydrargyri*.

DISEASES OF THE PERITONEUM.

PERITONITIS.

Synonym. Inflammation of the peritoneum.

Definition. A fibrinous inflammation of the peritoneum, either *acute* or *chronic*, characterized by fever, intense pain, tenderness, tympanites, vomiting and prostration. It may be limited to a

part, *local*, or it may involve the entire membrane, *general*, peritonitis.

Causes. *Acute variety:* Intense cold; protracted irritation by blisters; blows upon the abdomen; penetrating wounds of the abdomen; inflammation or perforation of the stomach, intestines, gall or urinary bladder, vermiform appendix or the surrounding parts; inflammation of the pelvic viscera; septicæmia or pyæmia; erysipelas; hernia.

Many surgeons doubt that peritonitis is ever an idiopathic disease, but that rarely it does so occur is certain.

Chronic variety: Tuberculosis; albuminuria; scrofula; cancer; sclerosis of the liver.

Pathological Anatomy. *Acute form:* hyperæmia of the serous membrane, the capillaries distended and occasional extravasations of blood from their rupture; the normal secretion is arrested, and the shiny membrane becomes dull and opaque, from an exudation of pure fibrin, which is adhesive, gluing the parts together; if the inflammatory action is now arrested, it is termed *adhesive* peritonitis; if, however, the action progress, an effusion of serous fluid is poured out into the peritoneal cavity, the amount varying from a few ounces to several gallons; this is termed *exudative* peritonitis. If recovery result, the fluid is absorbed, with much of the solid exudation, the unabsorbed portions forming adhesions between the membrane and the different abdominal organs, often causing great deformity and irregularity in their relations.

Local or circumscribed peritonitis is the same as general except that adhesions develop around the site of attack so rapidly that the inflammatory action is encapsulated. Why this occurs in some cases and not in others is not known. Pus develops if the absorption is not prompt or if any cachexia be present.

The chronic form follows the acute, or is associated with tuberculosis, scrofula, Bright's disease or sclerosis of the liver.

The membrane is irregularly thickened and opaque, with strong adhesions to one or more coils of the intestine, the liver or spleen; the quantity of fluid present is small, purulent or sero-purulent in character, and encysted by the agglutinated membrane.

Symptoms. *Acute form;* when idiopathic, the onset is sudden, with a *chill*, *fever*, 102–3°, *pulse* 100–140, wiry and tense, *severe pain*, cutting or boring in character, and *tenderness*, becoming so great

that the slightest touch aggravates it, the *decubitus* being on the back with flexed thighs; the *abdomen* is *distended* and *rigid*, from *constipation*, *effusion* and *meteorism;* the diaphragm is pushed up as far as the third or fourth rib in severe cases, causing compression of the lungs, and displacement of the heart, liver and spleen. There is *impaired appetite*, and *nausea* and *vomiting* are almost constant, as is *hiccough*. It is a clinical fact that a sub-normal temperature is of frequent occurrence in acute peritonitis.

Secondary form, from extension, begins with local and gradually increasing pain, the temperature increases, tense pulse and vomiting. If *from perforation*, it is announced by severe pain and all the symptoms of shock.

Purulent peritonitis, usually secondary (most commonly seen in those with chronic Bright's disease), is accompanied with hectic phenomena.

These symptoms continue from six to eight days, when they begin to decline and a tedious convalescence ensues, or pain and tenderness grow more marked, strength fails, surface cold, pulse rapid, and collapse, with hippocratic face, anxious expression, pinched features, sunken eyes, and drawn upper lip.

Chronic form, usually of tubercular origin, though other causes are given, shows irregular *chills*, *fever* and *sweats*, *distended abdomen*, *constipation* alternating with *diarrhœa*, diffused *tenderness*, with *points of intenseness* and *hardness; colicky pains* during digestion, *rapid emaciation* and failure of strength. Usually the lower portions of the abdomen give a dull note on percussion, from the presence of fluid, or scattered points of dullness, showing the presence of encysted fluid.

Diagnosis. The question of diagnosis in peritonitis is of great importance, as it is so frequently, if not always, associated with the diseases and accidents of the abdomen.

Acute gastritis differs from peritonitis in having a history of corrosive poisoning, severe pain, limited to the stomach, with early and severe vomiting; while the latter has fever, diffused abdominal pain and tenderness, with decided distention.

Acute enteritis has localized pain and tenderness with marked diarrhœa; constipation being the rule in peritonitis.

Rheumatism of the abdominal muscles occurs with a rheumatic history, is subacute, lacks the great abdominal distention and suffer-

ing expression of peritonitis, and while tenderness exists, it is not aggravated by deeper pressure.

Biliary colic, or the passage of a *gall-stone*, has, as a prominent symptom, excruciating pain, localized over the common bile duct, which is of a paroxysmal character and followed by slight passing jaundice. In *renal colic* the acute pain follows the course of the ureters, with retracted testicle and altered urinary secretion.

Prognosis. *Idiopathic cases* favorable, and especially if they continue longer than a week, as fatal cases usually end during the first week. Cases from perforation unfavorable.

Chronic peritonitis being generally of tuberculous origin, the prognosis is unfavorable, although partial or complete recovery results in the cases following the acute form of the disease.

Treatment. The peritoneal membrane being of such vast extent its general inflammation is one of the most formidable diseases the physician meets.

Acute form: Idiopathic and robust cases, locally, *leeches* or *wet cups*, followed by *cold* or *hot* applications, as most agreeable to the patient, or covering the abdomen with a *blister;* adynamic cases, *dry cups*, followed by warm applications medicated with *tinctura opii.*

The profession are divided between two plans of treatment for peritonitis, one side favoring *opium* and the other party as strongly urging *saline purgatives* and *laparotomy.*

Prof. DaCosta says *opium* and *quinina* are the remedies indicated at the onset of the disease, to wit: at once hypodermic of *morphina*, gr. ¼–⅓, maintaining the effect by hourly doses of either *morphina* or *opium*, by the mouth. Prof. Clark ascertained the tolerance of opium in this disease, by the tremendous amounts used in a case under his care; the first day he gave 200 grs., the second day 472 grs., the third day 236 grs., fourth day 120 grs., fifth day 54 grs., sixth day 22 grs., and on the seventh day 8 grains. Prof. Clark found that, as a rule, however, *morphina*, gr. ⅙–¼, every two hours, would maintain the effects of the drug. The *opium* should be guarded with sufficient doses of *atropina*. *Quinina*, gr. v, every four hours until exudation, after which gr. ij, four times a day, is of marked benefit.

While the opium treatment places the patient as well as the bowels "in splints" and relieves the pain, it is urged by the advocates of *saline purgatives*, however, that instead of locking up the bowels, the use of salines puts the bowels into active peristaltic action, whereby

the peritoneal cavity is drained of the products of inflammation and the inflamed surfaces are relieved of all engorgement by a thorough depletion of the vessels in the intestinal walls, the pulse and temperature are improved, the pain is lessened as quickly as by opium, and the formation of adhesions and bands is prevented.

Should the active symptoms continue under either plan of treatment, *laparotomy* is indicated.

The decline of the vital powers must be averted by *regulated nutrition* and *free stimulation.*

Locally, an ointment of *belladonna* and *hydrargyrum* is of value.

During *convalescence*, perfect quiet, nourishing diet, moderate stimulation, scattered flying blisters, and the following:—

℞. Potassii iodidi, ... gr. v–x
Ferri pyrophos., ... gr. ij
Elix. simpl., ... f℥ ss
Aquæ destillatæ, ... ad . . . . f℥ ij. M.
Every six hours,

should constitute the treatment, with tonic doses of *quinina.*

Peritonitis from *perforation*, absolute quiet, hypodermic injections of *morphina*, ice locally, and stimulants per mouth, rectum, or hypodermically, and laparotomy.

For puerperal and other varieties of peritonitis following disease of ovaries, tubes, uterus, and laparotomy, the reader is referred to works on obstetrics and surgery.

Chronic peritonitis; locally *tinctura iodi*, and internally *opium*, for pain; *potassii iodidum* as an absorbent, with nourishing diet, *oleum morrhuæ* and *stimulants*, and rest in bed.

ASCITES.

Synonyms. Dropsy of the abdomen; peritoneal dropsy; hydroperitoneum.

Definition. A collection of serous fluid in the abdomen, or more correctly in the peritoneal cavity; characterized by a distended abdomen, fluctuation, dullness on percussion, displacement of viscera, embarrassed respiration, *plus* the symptoms of its cause.

Causes. Ascites may form part of a general dropsy, to wit: car-

diac or nephritic. The most common factor in its production is a *mechanical obstruction* of the portal system from cirrhosis of the liver, pressure of tumors, diseases of the heart or lungs.

Pathological Anatomy. The quantity of fluid in the peritoneal sac varies from a few ounces to many gallons. It is generally of a straw color, or at times greenish, and is transparent, having an *alkaline* reaction. When blood is present in any great quantity, it points to cancer as a cause. The peritoneum becomes cloudy, sodden, and thickened, from long contact with the fluid.

Symptoms. The onset is insidious, and considerable *swelling of the abdomen* occurs before the disease attracts attention. *Constipation*, from pressure of the fluid on the sigmoid flexure. *Scanty urine*, from pressure on the renal vessels. *Embarrassed respiration* and *cardiac action*, from displacement of the diaphragm upward. The *umbilicus* is forced *outward*.

Physical signs; on *palpation*, a peculiar wave-like impulse is imparted to the hand laying on the side of the abdomen, while gently tapping the opposite side.

Percussion; patient erect, the fluid distends the lower abdominal region, with *dullness* over the site of the fluid and a *tympanitic note* above; if the patient turns on his side the fluid changes, and dullness over the fluid, tympanitic note over the intestines.

Diagnosis. *Ovarian tumors* differ from ascites in the history, in that the enlargement is limited to the iliac fossa, instead of a uniform abdominal enlargement, not changing its position when the patient changes posture, and by the detection of a tumor by conjoined manipulation through vagina, or by rectal exploration.

Pregnancy differs from ascites in the character of the enlargement, the history, absence of menses, increase of mammæ, change in the neck of the uterus, absence of fluctuation, and the presence of the sounds of the fœtal heart.

Distention of the bladder has been mistaken for ascites; the points of distinction are, in the former the history, presence of tenderness over the bladder, rounded outline of the percussion dullness, and the relief afforded by the catheter.

Chronic peritonitis is differentiated by the history, pain, tenderness, more or less vomiting, thickened abdominal walls, and its generally being associated with tubercle or cancer.

Chronic tympanites presents the enlarged abdomen, but lacks the

history, the dullness and the fluctuation, giving instead a tense abdomen and a universal tympanitic note.

Prognosis. Influenced by the causes producing it. *Idiopathic ascites*, which is most rare, terminates in health within a few weeks. If *peritoneal*, generally favorable. If from *organic disease*, most unfavorable, for while the dropsy may be removed, it as rapidly returns.

Treatment. The first indication is to treat the cause of the ascites, and the second to remove the fluid.

Three modes of removing the fluid present themselves: *first*, by hydragogue cathartics; *second*, diuretics and diaphoretics, and *third*, tapping. The first and second modes may be combined, as follows :—

℞. Pulv. jalapæ comp., ... ʒj–ij.
In water, an hour before breakfast;

And—℞. Potassii acetat., ... gr. x–xx–xl
Spts. ætheris nitrosi, ... ♏xv
Infus. digitalis, ... ad. q. s. . fʒij. M.
Every six hours.

Or instead use the following :—

℞. Hydrargyri chlor. mitis, ... gr. iij
Ext. opii, ... gr. $\frac{1}{12}$. M.
Et ft. pil.
Sig.—One every three or four hours.

If these fail, as they certainly will after a time, the embarrassed respiration and cardiac action will call for *tapping*, which may be done with the *trocar*, or, better still, the *aspirator*. The tapping does not remove the cause, and the fluid often rapidly accumulates again. Before tapping always examine the bladder, using the catheter if there be any doubt.

As all modes of treatment weaken the patient, the diet should be highly nutritious.

DISEASES OF THE BILIARY PASSAGES.

CATARRHAL JAUNDICE.

Synonyms. Catarrh of the bile ducts; icterus.

Definition. An acute catarrhal inflammation of the mucous membrane of the bile ducts and of the duodenum; characterized by gastro-intestinal derangement, yellowness, itching of the skin, feverishness, and mental depression.

Causes. Excesses in eating and drinking; a debauch; malaria; climatic, as cool nights succeeding warm days.

Pathological Anatomy. The mucous membrane of one or more of the bile ducts, or of the duodenum, becomes hyperæmic, swollen and thickened, from an effusion of serum into the submucous tissue; the result of this condition is the closure of the biliary passages, thereby impeding the outward flow of bile. The bile in the hepatic ducts being retained by the obstruction, the result is a staining of the liver substance and an *absorption* of bile, and its appearance in the blood.

Symptoms. Begins by *epigastric distress*, *coated tongue*, *impaired appetite*, *nausea*, with perhaps *vomiting*, and *looseness of the bowels* and *slight feverishness*, the phenomena of a gastro-intestinal catarrh. In from three to five days the *eyes become yellow*, and *jaundice* gradually appears over the whole body; the feverishness disappears, the *skin* becomes harsh, dry and *itchy*, the *bowels constipated*, the *stools whitish* or *clay-colored*, accompanied with much *flatus* and *colicky pains;* the *urine heavy* and *dark*, loaded with urates and containing biliary elements.

A few drops of the urine placed on a whitish surface, and a drop or two of nitric acid made to flow against it, will exhibit the following "*play of colors:*" a *greenish* tint, from the conversion of bilirubin into biliverdin, quickly followed by *blue*, *violet*, *red*, and *yellow*, or *brown*.

When the *jaundice* is complete, the *surface is cold*, the *heart's action slow*, the *mind torpid* and *greatly depressed*, and pain or tenderness on pressure over the hepatic region.

Duration. In from three to five days after the jaundice appears

the symptoms subside, save the torpid bowels, depression and discolored skin, which slowly disappear, often requiring a week or two.

Diagnosis. There are two varieties of jaundice, and in arriving at a diagnosis this must be remembered. There is *hepatogenous*, obstructive or catarrhal jaundice, and *hematogenous*, non-obstructive or blood-change jaundice.

The numerous diseases, of which jaundice is a symptom, will be differentiated when treating of them.

Prognosis. Always favorable; if the attacks are of frequent occurrence, however, they are apt to lead to organic hepatic changes.

Treatment. Rest in bed, with a carefully regulated diet, avoiding all starchy, fatty, or saccharine articles, milk being the most suitable, adding lime water if stomach irritable.

The jaundice being the result of an acute catarrh of the duodenum and the ductus choledochus communis, treatment is to be directed to this condition by such remedies as *sodii phosphas* ℥j, well diluted every four hours, or calomel and soda (℞. Hydrargyri chloridi mitis., gr. ¼; sodii bicarbonatis, gr. iij; sacc. lac., gr. iij. M. Sig.—Taken dry on tongue every two or three hours until one dozen are used, followed by Hunyadi Janos water), or the following:—

℞. Sodii bicarb., ... ℥ ij
Tinct. nucis vom., ... f℥ iv
Tinct. capsici, ... f℥ j
Tinct. rhei, ... f℥ jss
Inf. gent. comp. ad. q. s., ... f℥ vj. M.
Sig.—Dessertspoonful every four or five hours, in water.

For the dry, itchy skin *diaphoresis* is indicated. The warm or hot bath night and morning is valuable, adding *potassii carbonas*, ℥j to each.

If the urine continues scanty *diuretics* should be used, a simple and efficacious one being *potassii bitartras lemonade* at very frequent intervals. *Spiritus ætheris nitrosi*, ♏ x-xx, diluted, is always valuable for torpid kidneys.

A special plan, which is said to be effective, is with "enemata of cold water. By means of an irrigating apparatus the large intestine is well distended with water once a day for several days. The first enema has a temperature of 60° F., and subsequent injections are a little warmer. The increased peristalsis of the bowels and the reflex contractions of the gall bladder dislodges the mucus obstructing

the gall ducts. When the bile flows into the intestine, digestion is resumed and the catarrhal inflammation subsides." Other remedies may be conjoined with the irrigation method.

For *convalescence* :—

℞. Strychninæ sulph., ... gr. ss
Acid. nitro-hydrochlorici dil., ... ℥jv
Tinct. gentian. co., ... ℥ijss. M.
Sig.—Teaspoonful after meals, well diluted.

BILIARY CALCULI.

Synonyms. Hepatic calculi; gall-stones; hepatic colic.

Definition. Concretions originating in the gall-bladder, or biliary ducts, derived partly or entirely from the constituents of the bile. Their presence is generally unrecognized until one or more attempt to pass along the ducts, when an attack of *hepatic colic* is produced.

Causes. Gall-stones result from the *precipitation* of the crystallizable *cholesterine*, and its combination with inspissated mucus in the gall bladder or ducts.

A disease of middle life, and more frequent in the obese, and in women.

Gall stones are said to be common in carcinoma of the stomach or liver.

Pathological Anatomy. Cholesterine is the chief constituent of biliary calculi. Commonly several stones exist, and rarely one; as many as six hundred are recorded. They are generally found in the gall-bladder or cystic duct, rarely in the liver or hepatic duct.

Symptoms. The presence of gall-stones or biliary calculi is made known only by their expulsion from the gall bladder, whence is developed hepatic colic.

Hepatic colic begins suddenly, at the moment a gall-stone passes from the gall-bladder into the cystic duct.

The patient is seized with a *piercing, agonizing pain* in the region of the gall-bladder, and spreading over the abdomen, right chest and shoulder; the *abdominal muscles* are *cramped* and *tender;* there is *nausea* and *vomiting*, a small, *feeble pulse, cool skin, pale, distorted, anxious face*, with, may be, fainting, spasmodic trembling, chills, or convulsions.

The paroxysm continues from an hour or two to several days, with

remissions, but entire relief is not afforded until the stone reaches the duodenum, when the pain suddenly ceases.

Jaundice usually follows the paroxysm of pain. When the calculi reach the intestines, the pain, nausea and vomiting cease, the appetite returns, and the jaundice soon disappears.

Should the calculi become impacted, *ulcerative perforation* and consequent *peritonitis* follow, the calculi discharging by the intestine, stomach, or through the abdominal walls.

Diagnosis. The malady should not be mistaken if *severe pain*, diverging from the hepatic region, and *nausea* and *vomiting* are present, suddenly terminating, and followed by slight *jaundice*. The diagnosis is always made positive by diluting the stools voided for the day following an attack of suspected hepatic colic, and passing them through a sieve.

Prognosis. Usual termination is in health. The prognosis becoming more unfavorable if ulcerative perforation result.

Treatment. For the *colic*, hypodermic injections of *morphina*, gr. ⅙–⅓–½, combined with *atropina*, gr. $\frac{1}{120}$, and warm fomentations over the hepatic region, are indicated. *Oleum olivæ*, f℥ij–iv, every hour or two sometimes does good.

Prof. Bartholow strongly urges the following prophylactic treatment: Carefully regulated diet, abstinence from all fatty and saccharine substances, daily exercise, stoppage of all excesses, and the long use of *sodii phosphas*, ℥j, before meals, well diluted, to which may be added, if gastro-intestinal catarrh be present, *sodii arsenias*, gr. $\frac{1}{20}$, or *aurii et sodii chloridum*, gr. $\frac{1}{20}$, together with either Vichy or Saratoga-Vichy water.

DISEASES OF THE LIVER.

CONGESTION OF THE LIVER.

Synonyms. Torpid liver; biliousness.

Definition. An abnormal fullness of the vessels of the liver, with consequent enlargement of that organ; it is termed *active* when arterial; *passive* when venous. The condition is characterized

by torpidity of the digestive and mental functions, and slight jaundice.

Causes. *Active congestion;* heat, atmospherical or artificial; habitual constipation; malaria; excesses in eating and drinking; alcoholic or malt liquors. In females, an arrested menstrual epoch may give rise to an attack.

Passive congestion; cardiac and pulmonary diseases.

Pathological Anatomy. The liver is enlarged in all directions, and is abnormally full of blood. Cases due to obstructive diseases of the heart or lungs present the so-called "nutmeg liver," to wit: "At the centre of each lobule the dilated radicle of the hepatic vein, enlarged and congested, may be discerned, while the neighboring parts of the lobule are pale," the radicles of the portal vein containing less blood.

Long-continued congestion establishes atrophic degeneration of the organ; the decrease in size is confounded with the condition of cirrhosis, but the "atrophic liver" is smooth, while the "cirrhotic liver" is nodulated.

Symptoms. *Active congestion;* following cause, rapidly produced *malaise*, *aching of limbs*, evening *feverishness*, *headache*, depression of spirits, *yellowish tongue*, disgust for food, *nausea*, and, may be, *vomiting*, *constipation*, *scanty*, high-colored *urine*, with a feeling of *fullness*, *weight*, and *soreness* in the hepatic region, with dull pain extending to the right shoulder, and slight *jaundice*, the *eye yellow*, and the *complexion muddy*. Duration about a week.

Passive congestion; onset gradual, with a feeling of weight and fullness in the hepatic region, slight jaundice, and symptoms of gastro-intestinal catarrh.

On percussion the hepatic dullness is increased in all directions.

Diagnosis. Acute congestion is continually confounded with *catarrhal jaundice;* the latter begins with marked gastro-intestinal symptoms and distinct jaundice; in the former these are less marked.

Obstructive congestion is diagnosticated by the clinical history.

Atrophic or *nutmeg liver* will be differentiated from cirrhotic liver when speaking of the latter.

Prognosis. *Active congestion* favorable, unless repeated attacks occur, rapidly succeeding each other, when "atrophic degeneration" results.

Passive congestion controlled entirely by the cause.

Treatment. Attacks due to *excesses in eating and drinking*—

℞. Sodii bicarb., ... gr. v
Pulv. ipecac, ... gr. ss.
Hydrargyri chlor. mit., ... gr. iij–v,

repeated, or *sodii phosphas*, ʒj, every four hours until free catharsis, or small doses of *hydrargyri chloridum mite*, with *sodii bicarbonas* repeated several times, followed with *saline*, followed by

℞. Acidi nitro-hydrochlorici dil., ... ♏ x.
Elix. taraxaci comp., ... fʒij.
Before meals, and a milk diet.

Attacks due to *malaria*; the above purgatives followed by *quininæ sulph.*, gr. iv, every four hours.

Attacks occurring with cardiac or pulmonary diseases must be managed by treating the cause.

The tendency to constipation must be overcome by the *saline laxative waters*, to wit: Congress or Hathorn, Hunyadi Janos, or *sodii phosphas*, ʒj–ij, three or four times daily, well diluted.

Locally, in acute attacks, hot cloths or sinapisms are of benefit.

In *chronic cases* benefit follows, *elix. quininæ, ferri et strychninæ*, fʒj, three times a day, and great comfort and support is given by the use of the "*hydropathic belt*," which is made of stout muslin, shaped to the abdomen, with cross pieces of tape on the inner side, which keeps next to the skin a fold of cloth wrung out of cold water, and a piece of waterproof cloth or oiled silk, to prevent evaporation.

In persons who seem to have a predisposition to attacks of congestion of the liver upon the slightest exposure to any of the various exciting causes, the habits and diet must be regulated, to which must be added a course of alkaline waters and regulated exercise.

ABSCESS OF THE LIVER.

Synonyms. Parenchymatous hepatitis; acute hepatitis; suppurative hepatitis.

Definition. A diffused or circumscribed inflammation of the hepatic cells, resulting in suppuration, the abscesses being sometimes single, at times double; characterized by irregular febrile attacks,

hepatic tenderness, and symptoms of deranged gastro-intestinal and hepatic functions.

Causes. The result of the absorption of putrid material by the portal radicles in dysentery; ulcers of the stomach; malaria; blows and injuries; heat; pyæmia.

Pathological Anatomy. Hyperæmia, swelling, effusion of lymph, degeneration and softening of the hepatic cells; suppuration, beginning in points in the lobules and coalescing. The abscess walls consist of the liver structure, more or less changed.

The abscess may advance toward the surface of the liver, bursting into the peritoneum, intestines, stomach, gall bladder, hepatic duct or vein, or into the pleura or lungs, or externally through the abdominal walls; after the discharge of pus, cicatrization occurs, or the pus may be absorbed, the tissues around forming a dense cicatrix.

Symptoms. Very obscure. *Fever* simulating markedly intermittent or remittent fevers; disorders of the gastro-intestinal canal, with *obstinate vomiting*, *debility*, and great *irritability* of the *nervous system*, *melancholia*, slight *jaundice*, *constipation*, the *stools light* colored, and if of long duration, *typhoid symptoms*.

Locally, if the abscess is near the surface, *prominence of the hepatic region*, *throbbing*, limited *tenderness*, and if it tends to the surface, redness, œdema and fluctuation. The abscess may burst into the intestines, stomach, lungs, or pleura, the symptoms of which will be pronounced.

Diagnosis. Hepatic abscess may be confounded with hydatids of the liver, hepatic or gastric cancer, abscess of the abdominal walls, and purulent effusion in the right pleural cavity.

The differentiation is most difficult, but *great aid* is obtained from the use of the *aspirator*.

Prognosis. Unfavorable. Recoveries, however, do occur. If the abscess bursts into the lungs, bowels, or externally through the abdominal wall, the case is more favorable.

Treatment. *Symptomatic*, and when *pus* is present, the use of the *aspirator* to remove it, and sustaining treatment, *quinina*, *ferrum*, *alcohol* and *oleum morrhuæ*.

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ACUTE YELLOW ATROPHY.

Synonyms. General parenchymatous hepatitis; malignant jaundice; hemorrhagic icterus.

Definition. An acute, diffused or general inflammation of the hepatic cells, resulting in their complete disintegration; characterized by diminution in the size of the liver, deep jaundice, and profound disturbance of the nervous system; terminating in death, usually, within one week.

Causes. Unsettled. It occurs frequently in young pregnant women, from the third to the sixth month of pregnancy. Other causes are venereal excesses, syphilis, action of phosphorus, arsenic or antimony.

Pathological Anatomy. Begins with hyperæmia of the hepatic cells, with a grayish exudation between the lobules, followed by softening, dull yellow color, and disappearance of the cells, fat globules taking their place; the liver is reduced in size and weight; the peritoneum covering the liver is thrown into folds; the spleen is enlarged; the kidneys undergo degeneration; the blood contains a large amount of urea and considerable leucin; the urine is loaded with bile pigment, and contains albumin.

Symptoms. *Prodromic period;* begins as a *gastro-intestinal catarrh*, coated tongue, nausea, vomiting, tenderness over the epigastrium, headache, quickened pulse, slight fever and slight *jaundice*.

Icteric period; jaundice deepens, pulse slow, headache increases, and persistent *insomnia*.

Toxæmic period; fever, rapid *pulse*, more complete *jaundice*, *pain*, nausea, *vomiting of blackish, grumous blood*, or "coffee grounds," *tarry stools*, ecchymotic patches, *convulsions* or epileptiform attacks, *coma*, insensibility, death.

Percussion shows markedly *decreased* hepatic dullness.

Duration. Short. After appearance of jaundice, about six days.

Prognosis. Unfavorable.

Treatment. Entirely symptomatic. Prof. Bartholow "advises the trial of very small doses of phosphorus, as early as possible, as this remedy affects the organ specifically, and an action of antagonism may be discovered between them."

SCLEROSIS OF THE LIVER.

Synonyms. Interstitial hepatitis; cirrhosis of the liver; hob-nailed liver; gin-drinkers' liver.

Definition. An inflammation of the intervening connective tissue of the liver, chronic in its progress, resulting in an induration or hardening of the organ, and an atrophy of the secreting cells; characterized by gastro-intestinal catarrh, emaciation, slight jaundice, and ascites.

Causes. The prolonged use of alcoholic stimulants, gin, whisky, beer, or porter; syphilis.

Pathological Anatomy. *First stage;* hyperæmia of the connective tissue (Glisson's capsule) of the liver, and the development of brownish-red connective-tissue elements, whereby the organ is increased in size and density; this increase of the connective tissue presses upon the hepatic cells, causing them to undergo fatty degeneration.

Second Stage; the newly formed, imperfectly developed connective tissue contracts, causing decrease in the size and induration of the organ, its surface being nodulated. The hepatic and portal circulation is obstructed, from obliteration of their radicles.

The hepatic peritoneum is thickened and opaque, and adhesions are formed to the diaphragm, gall-bladder, and stomach.

Cases occur in which the sclerosis takes place while the organ continues enlarged; these cases are known as *hypertrophic sclerosis.*

Symptoms. No characteristic symptoms of the early stage of the affection. Persistent *gastro-intestinal catarrh,* with attacks of *jaundice,* in a drinking man, are suspicious. Symptoms of the second stage are, *abdominal dropsy, enlargement* of the superficial *abdominal veins, dyspepsia,* localized peritoneal *pain, hemorrhages* from the *stomach* or *intestines,* muddy or slightly *jaundiced* skin and *decided emaciation;* the enormously distended abdomen with thin legs are characteristic of sclerosis of the liver.

Diagnosis. *Atrophy of the liver,* or the nutmeg liver, is almost always confounded with sclerosis; the former occurs most commonly with obstructive diseases of the heart and lungs, and the surface of the organ is not nodulated, nor is there a history of alcoholism.

Cancer and tubercle of the peritoneum have many symptoms akin to sclerosis. The points of differentiation are, great tenderness over

abdomen, rapidly developed ascites, rapid decline in strength and flesh, absence of jaundice, absence of long-continued dyspepsia, absence of hepatic changes on percussion, and the presence of tubercle or cancer deposits in other organs.

Prognosis. Terminates in death. Average duration after appearance of the dropsy, one year.

Treatment. For the changes in the hepatic structures, little, if anything, can be done; the following are some of the remedies recommended, to wit: *hydrargyri chloridum corrosivum*, gr. $\frac{1}{60}$–$\frac{1}{40}$, three times a day; *hydrargyri chloridum mite*, gr. $\frac{1}{100}$, three times a day; *aurii et sodii chloridum*, gr. $\frac{1}{20}$, after meals; *sodii phosphas*, ʒss–j, after meals; *potassii iodidum*, after meals.

The diet must be regulated, *milk* being the most suitable, and avoiding fatty and saccharine foods.

The abdominal dropsy may be temporarily benefited by *purgatives* and *diuretics*, but sooner or later *tapping* becomes necessary.

AMYLOID LIVER.

Synonyms. Waxy liver; lardaceous liver; scrofulous liver; albuminous liver.

Definition. A peculiar infiltration into, or a degeneration of, the structure of the liver, from the deposit of an albuminoid material which has been termed *amyloid*, from a superficial resemblance to starch granules.

Causes. The chief cause is prolonged suppuration, especially of the bones; coxalgia; syphilis; cancer.

Pathological Anatomy. The liver is uniformly enlarged. It presents a pale, glistening, translucent appearance, and has a doughy consistency. On section, the surface is homogeneous, is anæmic and whitish. The deposit begins in the arterioles and capillaries, finally closing them.

The reaction with iodine and sulphuric acid affords a certain test of the amyloid or albuminoid deposits. After further cleansing, brush over the parts a solution of iodine with iodide of potassium in water, when they will assume a mahogany color, and if diluted sulphuric acid be added, a violet or bluish tint is produced.

A pretty reaction is to take a one per cent. solution of anilin violet, which strikes a red or pink color with the amyloid or albuminoid

material, while the unaltered tissues are stained blue, thus showing a beautiful contrast.

The amyloid change involves the spleen, kidney, intestines, and other organs.

Symptoms. Nothing characteristic. Hepatic dullness increased, with prominence over the liver; absence of pain; splenic dullness increased; emaciation and anæmia; urine increased in amount, pale, and containing some albumin, due to amyloid changes in the kidneys. Disorders of digestion, with diarrhœa, due to amyloid changes in the intestines. Jaundice is rare. Ascites seldom occurs.

Prognosis. Unfavorable. The progress is rapid or slow, depending upon the cause.

Treatment. No specific. Prof. DaCosta recommends *ammonii murias*, gr. x–xx, three times daily, for several weeks, then change for same length of time to *syrupus ferri iodidum*, beginning with ♏x gradually increased to ʒj after meals, then to the former again, and so on, for months. Life may be prolonged by the use of *ferrum*, *syr. calcii lactophosphas* and *oleum morrhuæ*.

HEPATIC CANCER.

Synonym. Carcinoma of the liver.

Definition. A peculiar morbid growth, progressively destroying the hepatic tissue; characterized by disorders of digestion, anæmia, emaciation, jaundice, and ascites, and terminating in the death of the patient.

Causes. Hereditary, when it is termed *primary* cancer; extension from other organs, termed *secondary* cancer. It is a disease of advanced life, from forty to sixty years of age.

Pathological Anatomy. The most common variety of cancer of the liver is a compound of the medullary and scirrhus.

The cancer cells develop from the interlobular connective tissue, and as they grow the hepatic cells atrophy, the result of the pressure of the new growth. The branches of the hepatic artery enlarge and permeate the growth, while the branches of the portal vein are compressed and atrophied, thereby blocking up the portal circulation.

The cancer may develop in nodules or masses, or may be diffused; the nodules vary in size, and those on the surface are rounded, with a central umbilication. The peritoneum is adherent, cloudy, and thickened.

Symptoms. The development of hepatic cancer is preceded by a history of dyspepsia, flatulency, and constipation. *Uneasiness, weight,* and *pain,* increased by pressure, are noticed; *jaundice, ascites,* occasional intestinal *hemorrhages, emaciation, feebleness, anæmia, cold, dry, harsh skin, pinched features,* with *dejected,* worn *expression.. Fever never occurs.* The hepatic dullness is increased, with pains on palpation, and the liver is indurated, irregular and nodulated.

The duration is less than a year from the time the disease is recognized.

Diagnosis. The points of differentiation are the *age, cachexia, pain,* and *tenderness, enlarged liver* with *hard nodules,* and *rapid* emaciation and progress of the disease.

Prognosis. Always terminates in death.

Treatment. Early, symptomatic. Sooner or later *opium* must be used, to relieve the terrible and persistent pain.

DISEASES OF THE KIDNEYS.

THE URINE.

The *normal quantity* of urine varies from forty to fifty ounces in the twenty-four hours; it is *decreased* by free perspiration and *increased* by chilling of the skin.

Within the twenty-four hours, the least urine is passed at night, or in the early morning, very much the greater portion being passed during the course of the day.

The *normal color* is light amber, due to *urobilin;* the color deepens if the quantity voided be decreased, and *vice versa.* In nearly all normal urine a cloud of mucus forms, after standing a short time.

The *normal reaction* is slightly *acid,* due to the *acid sodic phosphate, uric* and *hippuric acids.* After meals it may be *neutral* or even *alkaline.*

The *normal specific gravity* varies from 1.015 to 1.020; it is *low* when an increased quantity is passed, and *high* when the quantity is diminished.

The *normal odor* of urine is a peculiar, well known, aromatic one

it is altered by certain foods, such as the violet stench after eating asparagus, and the garlicky odor after using garlic.

The most important organic and inorganic solid constituents held in solution are, *urea* (the index of nitrogenous excretion), from 308 to 617 grains daily; *uric acid*, from 6 to 12 grains; *urates of sodium, ammonium, potassium, calcium* and *magnesium*, from 9 to 14 grains; *phosphates of sodium*, etc., from 12 to 45 grains, and *chlorides of sodium*, etc., from 154 to 247 grains daily.

I. Quantitative test for *urea*, by hypobromite of sodium (Davy's method).

Fill a graduated glass-tube one-third full of *mercury*, and add one-half drachm of the 24 hours' urine; then fill the tube evenly full with a saturated solution of *hypobromite of sodium*, and close it *immediately* with the thumb; invert the tube and place its open end beneath a sat. sol. of *chloride of sodium;* the mercury flows out and is replaced by the solution of salt; *nitrogen gas* is disengaged from the urea in the upper part of the tube.

Each *cubic inch of gas* represents .645 gr. of urea in the half drachm, from which the amount passed in 24 hours may be calculated.

II. Tests for *urates* and *uric acid* by nitric acid.

Urine containing an excess of urates and uric acid, on *cooling*, precipitates them (viz.: "brickdust deposits" in "pot de chambre"). *Heat* dissolves them to a certain extent.

Nitric acid deprives the soluble *neutral* urates of their bases, and produces, at first, a faint, milky precipitate of amorphous *acid urates;* adding more acid, the still less soluble *red crystals of uric acid*, resembling cayenne pepper, are deposited.

Put a small quantity of *nitric acid* in a test tube, and pour the urine carefully down the sides of the tube upon it, and a *zone* of *yellowish-red uric acid* and altered coloring matter will form at their union; and a dense, milky *zone* of *acid* urates above this, which, however, dissolve upon agitation. (See albumin test.)

III. Quantitative test for *uric acid* by nitric acid.

To *three ounces* of the 24 hours' urine (after being slightly acidulated, boiled, and filtered while hot) add *one-tenth* as much *nitric acid;* place in a cool place for 24 hours, then collect the deposit of *uric acid* on a weighed filter, wash it thoroughly, and dry at 212° F. The increased weight represents the uric acid in part excreted, approximately.

IV. Test for the earthy and alkaline *phosphates* by the magnesian fluid.

Heat or *liquor potassæ* increases the cloudiness caused by earthy calcium and magnesium phosphates. *Acetic* or *nitric acid* clears it by dissolving them.

To two ounces of urine add one-third as much of the following solution: ℞. Magnesii sulph., ammonii chloridi puri, liquor ammoniæ, each one part; aquæ destil., eight parts; if the precipitate has a *milky*, cloudy appearance, the quantity of phosphates is normal; if *creamy*, the *phosphates* are in excess.

V. Test for the *chlorides* by nitrate of silver.

To a convenient quantity of urine add a small amount of nitric acid, to prevent the formation of the phosphates and other salts of silver; filter this, if cloudy; add to this *one drop* of a solution of nitrate of silver (1 part to 8) and the precipitate of white cheesy lumps of *chlorides of silver* denotes that the amount of *chlorides* are normal; if, however, only a *faint milkiness* occurs, the *chlorides* are diminished.

VI. Test for *mucus* by acetic acid and liquor. iodi comp.

Mucus alone is not visible, but causes *cloudiness*, from having entangled mucus or pus corpuscles, epithelium, granules of sodium urate, crystals of oxalate of lime, and uric acid in various amounts.

Add to the urine a little *acetic acid*, or, in addition, a few drops of *liquor. iodi comp.*, when threads and bands of *mucin* are made visible. The addition of *nitric acid* dissolves them.

VII. Test for *albumin* by heat and nitric acid.

Slightly acidulate the urine, if necessary, by addition of nitric or acetic acid, and *boil*; this causes a *white* deposit of *coagulated albumin*, which is not dissolved by nitric acid, unless the acid is in excess.

Nitric acid causes a *white* deposit of *coagulated albumin*, which is dissolved if a large excess of acid be added. A delicate test is to put the *nitric acid* in the tube first, and then gradually pour the urine down the side of the tube upon it, when a *white zone* or *ring* of *coagulated albumin* appears. *Precaution*, see tests Nos. 3, 4, 11, and 13.

VIII. Test for *albumin* by picric acid (saturated, watery solution).

Pour a quantity of urine into a test-tube, and add the *picric acid solution* drop by drop, and, as it passes through the urine, it is followed by an opaque white cloud if albumin be present. The test is very striking and beautiful. If cloudiness appears some time after, instead of at the time, it shows nothing. The test will not detect as small an amount of albumin as heat or nitric acid.

IX. Nitric-magnesian test for *albumin*. The fluid is prepared by mixing 1 part of pure nitric acid with 5 parts of a saturated solution of the sulphate of magnesium, and filtering.

One drachm of the reagent is poured into a perfectly clean test-tube; the urine should be allowed to trickle slowly down upon the fluid; if albumin be present in an amount as small as one one-hundredth of one per cent., this test will show a compact, dense, white layer. This is one of the best and most reliable tests for albumin.

X. Quantitative test for *albumin*. Approximately.

Add a few drops of *nitric acid* to a proportion of the urine, and *boil*; set this away for 24 hours, and the proportionate depth of the resulting deposit is the comparative indication, viz.: ¼–½, etc.

For minute traces of albumin Millard's fluid may be used; it is a delicate test and requires care. The fluid consists of glacial carbolic acid (ninety-five per cent.) ℥ij; pure acetic acid, ℥vij, liquor potassæ ℥ij, ℥vj.

XI. Test for *blood* by heat and nitric acid.

Heat or *nitric acid* causes deposit of albumin, with the coloring matter changed to a *dirty brown*.

XII. Test for *blood* by heat and caustic potash (Heller's).

Heat the urine, then add *caustic potash* and *heat* anew. The phosphates are thus precipitated, taking with them the coloring matter of the blood, which imparts a *dirty, yellowish-red* color to the sediment, viewed by reflected light, and when seen by transmitted light, gives a splendid *blood-red color*.

Neither the coloring matter of the blood, nor that of the bile, is precipitated with the phosphates, so that coloration of urine which shows this reaction cannot be ascribed to the presence of the latter pigments.

When the quantity of blood in the urine is very large, it is of a *dark* or *brownish-red*, and after standing, forms a coagulum of blood at the bottom of the vessel.

Caution. Heat or nitric acid causes coagulation of the albumin in pus.

XIII. Test for *pus* by liquor potassæ.

Add to the urine, or preferably to its deposit from standing, an equal volume of *liquor potassæ;* when well mixed, a *viscid gelatinous fluid* or mass is formed, which pours like the white of an egg, or jelly.

XIV. Test for *bile* by "fuming" or red nitric acid.

Allow a specimen of urine and a few drops of red "fuming" *nitric acid* to gradually intermingle on a porcelain dish, and a "play of colors," *green*, *blue*, *violet*, *red* and *yellow* or *brown*, occur, if biliary coloring matter be present.

XV. Test for *bile pigment* by pure hydrochloric and pure nitric acids (Heller's).

Pour into a test tube about 1.6 f℥ of pure *hydrochloric acid*, and add to it, drop by drop, just sufficient *urine* to distinctly color it. The two are mixed. Then drop down the side of the test-tube pure *nitric acid*, which will "underlay" the mixture of hydrochloric acid and urine. At the point of contact between the mixture and the colorless nitric acid a handsome "play of colors appears." If the "underlying" nitric acid is now stirred with a glass rod, the set of colors which were superimposed upon one another will appear alongside of each other in the entire mixture, and should be studied by transmitted light.

If the hydrochloric acid, on addition of the biliary urine, is colored *reddish-yellow* the coloring matter is *bilirubin*; if it is colored *green*, it is *biliverdin*.

XVI. Test for *sugar* by liquor potassa and heat (Moore's).

Add to the urine half its volume of *liquor potassæ*. (*Caution.* This *may* give a white, flaky precipitate of the earthy phosphates, which should be removed by filtering.) Now *boil*; this causes, at first, a *yellow-brownish* color, becoming *darker* if much sugar is present, due to glucic, and finally to melassic acid.

XVII. Test for *sugar* by subnitrate of bismuth, liquor potassæ and heat.

Add to the urine half its volume of *liquor potassæ*, and then a little *bismuth subnitrate*, shake and thoroughly *boil*; the presence of sugar reduces the salt and *black metallic bismuth* is deposited, or if but little sugar, a *gray deposit* occurs.

Caution. Albumin must be absent.

XVIII. Test for *sugar* by a solution of cupric sulphate, liquor potassæ and heat (Trommer's).

Add to the urine a few drops of a solution of *cupric sulphate*, and then its own volume of *liquor potassæ*. (*Caution.* On first addition a light greenish precipitate occurs, which, on further addition of the reagent, if sugar or certain other organic matters are dissolved, giving a transparent blue liquid.) Now *boil*, and a *yellowish* precipitate of *hydrated cupric suboxide*, occurring at once, denotes the *presence of sugar*.

Caution. Albumin must be absent.

XIX. Quantitative test for *sugar* by *Pavy's* solution, to wit :—

℞.

Cupric sulphate, gr. 320
Neutral potassic tartrate, . . gr. 640
Caustic potash, gr. 1280
Distilled water, f℥ 20

Keep corked.

Take of *Pavy's* solution of *cupric protoxide*, recently prepared (see margin), 200 minims or a multiple of this quantity, and *boil* in a porcelain dish; while boiling, add minim by minim, from a measured portion of the 24 hours' urine, and it gives a *yellowish* precipitate of *hydrated cupric suboxide*, if sugar be present.

Note *carefully* the gradual disappearance of the *blue color*, and when *completed* (best determined by looking through the margin of the fluid against the white porcelain dish) from the amount of urine used, determine the amount of sugar passed daily. *The quantity of urine containing one grain of sugar being just sufficient to reduce the 200 minims of the copper solution.*

XX. Quantitative test for *sugar* by fermentation and the specific gravity.

Take *two* measured specimens from the 24 hours' urine, and to *one* add a little *yeast*. Place each specimen in a temperature of 75° to 80° Fah.; in 24 hours, *fermentation* having destroyed the *sugar* in the *one* containing the *yeast*, the difference in the *specific gravity* of the two specimens expresses the number of grains in each ounce of the urine. Approximately.

CONGESTION OF THE KIDNEYS.

Synonyms. Renal hyperæmia; catarrhal nephritis.

Definition. An increase in the amount of blood in the vessels of the kidneys; when arterial, it is termed *active congestion;* when venous, *passive congestion;* characterized by pain, frequent desire for urination, the amount of urine scanty, high-colored, occasionally containing albumin or blood.

Causes. *Active;* from cold; irritating substances eliminated by the kidneys, as turpentine, copaiba, cantharides, carbolic acid, nitrate or chlorate of potash; during the eruptive or continued fevers; injuries over the kidneys.

Passive; obstructive diseases of the heart or lungs, pressure of the pregnant uterus.

Pathological Anatomy. The kidneys enlarge and increase in weight; increased redness (the color being bluish if *passive*), with points of vascularity, corresponding to the Malpighian bodies, and occasionally minute ecchymoses. The abnormal hyperæmia causes a catarrhal state of the ducts of the pyramids, with shedding of their epithelium.

If mechanical (*passive*) obstruction continues for some time, increase of the connective tissue, with consequent induration and contraction results, or a form of chronic Bright's disease.

Symptoms. *Active variety; pain* over kidneys and following the course of the ureters into the testicles and penis, *irritable bladder*, almost constant and pressing desire for urination, the *urine scanty, high-colored,* and *occasionally* bloody, with fibrin, casts and albumin; there is, as a rule, no pain during the act of urination. The constitutional symptoms are headache, slight nausea, vomiting, and a general feeling of discomfort.

If the condition persist, *inflammation* of the kidney results.

Passive; the kidney changes are masked by the *lung* or *heart* trouble, until *dropsy, scanty, high-colored, albuminous* urine is observed.

Prognosis. *Active;* if recognized and properly treated, favorable.

Passive, controlled by the cause, and if prolonged, terminating in *interstitial nephritis.*

Treatment. The most important indication is to ascertain and remove the cause. Rest of the body; dry or wet cups over the loins;

dilute the urine by increasing the quantity of bland fluids consumed; *saline purgatives;* warm bath or other mild diaphoretics. *Infusum digitalis* is pre-eminently the remedy for congestion of the kidneys; if great *irritability of the bladder, camphora*, gr. ij–iv, every four hours, combined with *morphinæ sulph.*, gr. $\frac{1}{12}$–$\frac{1}{6}$, or the hypodermic injection of *morphina*, gr. $\frac{1}{12}$.

The treatment of the passive form resolves itself into the treatment of the cause, remembering that there is too much blood in the veins and too little in the arteries. There are three ways of restoring the circulation. By *venesection*, opening a large vein; by increasing the power of the heart by the use of *digitalis* or *strophanthus*, preferably the first named; and by dilatation of the capillaries with inhalations of *amyl nitrite* or the internal use of *spiritus glonoini* (nitro-glycerin 1 per cent. solution), one to three drops every four hours. The bowels should be kept soluble by *salines*.

ACUTE PARENCHYMATOUS NEPHRITIS.

Synonyms. Acute Bright's disease; acute desquamative nephritis; acute tubal nephritis; acute nephritis.

Definition. An acute inflammation of the epithelium of the uriniferous tubules; characterized by fever, scanty, high-colored or smoky urine, dropsy, with more or less constant nervous phenomena, the result of acute uræmia.

Causes. The young more liable than the aged; cold and exposure; scarlatina, diphtheria, and other infectious diseases; persistent use of irritants, as turpentine, cantharides, phosphorus, ginger, and others. Blows and injuries of the back have caused acute nephritis.

Pathological Anatomy. The kidneys are generally swollen, engorged, more vascular, and of red color; in the second stage the organ remains large, irregularly red, especially the cortex; the tubules are engorged and filled with epithelium, blood corpuscles and fibrin. The capsule is easily detached, and is more opaque than normal.

If a favorable termination, the swelling lessens, the vascularity diminishes, the tubules returning to a normal condition.

Symptoms. In mild cases the slowly developing *dropsy*, with *anæmia*, and *dyspnœa*, or simply shortness of breath, with weakness, are the only clinical phenomena present, the diagnosis being con-

firmed by an examination of the urine. Usually, however, begins suddenly. *Fever*, with *nausea* and *violent* and *persistent vomiting*, dull *pain* over the kidneys, following the ureters; frequent desire to urinate; diarrhœa; *skin* harsh and dry; *pulse* quick, tense, and full. Soon *dropsy* appears, the eyelids and face become puffy and swollen, followed by general œdema of the extremities, scrotum, and abdominal walls. If the attack follow scarlatina there are from the onset much greater pallor and general debility.

Uræmic symptoms may develop any time during the attack.

The *urine* is of high specific gravity, scanty, smoky (like beef washings) in color, due to the presence of *blood*. *Albumin* is present in large quantities, and the microscope reveals *casts* of the uriniferous tubules, blood corpuscles, uric acid, urates and oxalate crystals, and epithelium.

Duration from one to four weeks.

Complications. *Pericarditis*, *pleuritis*, *pneumonitis*, *peritonitis*, and *acute uræmia*, from retention and decomposition of urea in the blood.

Diagnosis. The history, fever, scanty, smoky, albuminous urine, with dropsy beginning in the face, should prevent any error.

Albuminuria may be confounded, on account of the presence of albumin in the urine, but lacks the clinical history, usually occurring in the course of some constitutional affection, as diphtheria, cholera, yellow fever or erysipelas.

Da Costa distinguishes between acute Bright's disease and acute nephritis by the last named "affecting only one kidney, by much greater pain and tenderness in the lumbar region, by the retraction of the testicle, and by the higher degree of febrile excitement. Then, too, the deeply-colored urine which is voided contains little or no albumin."

Prognosis. Favorable. Majority of cases recover under prompt treatment. Rarely passes into chronic Bright's disease. *Uræmic* symptoms add to the gravity of the prognosis.

Treatment. *Absolute rest in bed* until all symptoms have disappeared. A strictly *milk diet* is the most suitable, but if there is much depression and weakness, may add *animal broths* and *oysters*. No tea, coffee or stimulants. Water can be used *ad libitum*. Cream of tartar lemonade is a useful as well as pleasant drink. Locally, *dry cups* over the kidneys followed by poultices—a *digitalis* poultice being the very best.

The bowels should be kept soluble with morning doses of *salines*, or *pulv. jalapæ comp.*, ʒj, in water before breakfast, or *elaterium*, gr. $\frac{1}{5}$ repeated p. r. n. Free action of the bowels assists in relieving the overtaxed kidneys, and conjoined with free *diaphoresis* seems almost indispensable in acute nephritis. *Magnesii sulphas*, in small and repeated doses, is a valuable cathartic in nephritis, as it acts upon the kidneys as well as the bowels.

The most efficient diaphoretics are, the *hot-air bath* or *pack*, or the *wet sheet and blanket bath*, stimulating the peripheral circulation after free sweating has occurred by rubbing with alcohol and water. For drugs, one of the very best is *extractum pilocarpi fluidum*, ♏x–xxx, every three or four hours; but as it is generally conceded that pilocarpus acts better when administered subcutaneously, employ *pilocarpinæ hydrochloras* gr. $\frac{1}{6}$, repeated p. r. n., by the hypodermic method. Another valuable diaphoretic is *vinum ipecacuanhæ*, gtt. j–iij, every half hour or so.

Diuretics are of great value, indeed, often indispensable in acute nephritis. The following formula of Millard's is suitable in the majority of cases:—

℞. Tinct. digitalis, ... f ʒss
Aceti scillæ, ... f ʒjss
Spts. ætheris nitrosi, ... f ʒij. M.
Sig.—Teaspoonful every three or four hours in water.

The following combination has given excellent results:—

℞. Potassii acetat., ... ʒiv–vj
Inf. digital., ... f ʒiij
Liq. potassii citratis, ... f ʒiij. M.
Sig.—Tablespoonful every four hours in water.

Other reliable diuretics are *digitalinum* (cryst.), gr. $\frac{1}{100}$; *caffeinæ citras*, gr. ij–jv, or *sparteinæ sulphas*, gr. ⅓–½.

If uræmic symptoms, treat according to directions given in that section.

As soon as the blood disappears from the urine, a course of *ferrum*, in the shape of *Basham's mixture*, until albumin disappears and health is restored. The following is the formula of Basham's mixture:—

℞. Liq. ammon. acetat., ... f ʒvj
Acid. acetic., ... ʒiij
Tinct. ferri chlor., ... f ʒv
Alcoholis, ... ʒij
Syrup., ... f ʒiv
Aquæ, ... f ʒiv. M.
Sig.—Dose, f ʒj–f ʒj.

CHRONIC PARENCHYMATOUS NEPHRITIS.

Synonyms. Chronic Bright's disease; chronic croupous nephritis; chronic tubal nephritis; chronic albuminuria; large white kidney.

Definition. A chronic inflammation of the cortical and tubular structure of the kidneys; characterized by albuminous urine, dropsy, increasing anæmia, with attacks of *acute uræmia*.

Causes. Rarely follows the acute form, but in ever so many cases the etiology is unknown, and in the vast majority of cases it is primarily chronic or subacute; syphilis; chronic malaria; alcoholic excesses; chronic mercurialism; lead poisoning; opium habit; protracted suppuration; phthisis; hepatic disorders; pregnancy; some undetermined nervous condition.

It is a disease of the young, rarely occurring after forty.

Pathological Anatomy. A large white, or yellowish white, smooth kidney, often twice the normal size. The capsule is nowhere adherent to the organ. Upon section, considerable tumefaction of the cortical substance and the rarity of vascular striæ are recognized. The medullary substance shows no appreciable alteration, its color being normal. The convoluted tubes are irregularly dilated and thickened, and filled with broken-down, granulated epithelium and fibrinous casts. In pronounced cases there is fatty degeneration of the tubular epithelium.

"The intertubular matrix is greatly thickened—a change due to hyperplasia of the connective-tissue elements, to the migration of the white corpuscles and their subsequent multiplication and fatty transformation, and to a quantity of fluid exudation, the product of the increased pressure in the veins."

Symptoms. The onset is gradual and insidious, and the affection is seldom recognized until the appearance of *dropsy*, which, beginning under the eyes and in the face, extends all over the body, causing *dyspnœa* from *ascites* or *hydrothorax*, although in many cases the dropsy is a late symptom, the patient becoming *pale, debilitated* and suffering from *cardiac palpitation*, increasing *dyspnœa*, and *vomiting*, all gradually developing without apparent cause; also *headache, vertigo* and *defective vision*. The *urine* is scanty, high-colored, *albuminous*, and under the microscope showing hyaline and

granular *tube casts*, granular epithelium, and if fatty degeneration occur, *fatty tube* casts and oil globules. The increase above the normal amount of the urine, as the disease progresses, must not be forgotten, when the specific gravity is low, 1.010–1.015, and the quantity of albumin is increased. Irritable bladder is a very constant symptom.

Anæmia is pronounced, from the large waste of albumin. *Gastro-intestinal* disorders and vague *neuralgic pains* are common occurrences. *Cardiac hypertrophy* is of common occurrence. *Bronchial catarrh*, with slight *œdema of the larynx*, causing *husky voice*, are frequent complications. *Amaurosis*, the result of *neuro-retinitis*, occurs in a greater or less degree in all pronounced cases. *Uræmic* symptoms occur and especially *uræmic asthma* (renal asthma).

Complications. Pneumonitis, pleuritis, pericarditis, peritonitis, meningitis, and cardiac hypertrophy.

Prognosis. Not unfavorable, unless urine persistently contains a large number of *fatty tube* casts and *oil globules*. Relapses are frequent, but many complete (?) recoveries are recorded. I have seen four apparent recoveries, one after twelve months' duration, another after two years' duration, and still another after five years' duration, no return showing itself after two years.

Treatment. It is to be borne in mind that the course of a case of chronic Bright's disease is not continuously downward; periods of remission often follow the most aggravated symptoms, the patient and his friends being buoyed into the hope of an early and complete recovery, when, as suddenly, an attack of acute uræmia terminates life.

Rest and *diet* are important elements in the treatment.

A patient with chronic Bright's disease should, as far as possible, be relieved from all cares of business and spend a goodly portion of time in bed.

The *diet* is of prime importance. It may consist of an absolute *milk* regimen, pure, or prepared as most palatable, or an exclusive *lean meat* diet, prepared by finely chopping, removing all fibrous and fatty portions, boiled quickly, salted to taste, and served hot. The use of half a pint of hot water, acidulated with lemon, before each meal is valuable.

The use of *diaphoretics* and *hydragogue cathartics* are only indi-

cated when the dropsy is marked, the skin harsh and dry, the urinary secretion scanty, and uræmic symptoms are threatening, for which administer the following:—

℞. Hydrargyri chlor. mitis,
Pulv. scillæ,
Pulv. digital., ... āā . . . . gr. j. M.
Et ft. pil.

Sig.—Three times daily for a few days.

Diuresis should be promoted, if the secretion of urine is scant, by *digitalis*, *caffeinæ citrata* or *sparteinæ sulphas.*, internally or hypodermically, or *spiritus glonoinis*, and dry cups and poultices over the loins.

Iron is preëminently the drug for this variety of Bright's disease; the tinctura ferri chloridum or the albuminate are the best forms for administration.

The *anæmia* is to be treated by *oleum morrhuæ*, *arsenicum* and *ferrum*, an excellent formula for the latter being—

℞. Strychninæ sulph., ... gr. ¼
Tinct. ferri chloridi, ... f℥ ss
Acidi acetici puræ, ... f℥ iss
Curacoæ albæ, ... f℥ j
Liq. ammonii acetat., ... ad . . . f℥ vj. M.

Sig.—Tablespoonful every five hours, followed by a glass of cold water.

To check the waste of *albumin*, a difficult matter, the following remedies have been used with more or less success: *ergota*, *quinina*, *acidum gallicum*, *sodii benzoas*, *tinctura cantharidis*, or *potassii iodidum*.

For *dropsy*, purgatives, such as *pulvis jalapæ compositus*, *magnesii sulphas*, and alkaline mineral waters; act on skin with *vapor baths*, or *pilocarpinæ hydrochloras*, gr. ⅛, repeated if not much cardiac depression, or combining *pulvis ipecacuanhæ et opii*, gr. iij, with *potassii nitras*, gr. iij–v every two or three hours, or, what is most valuable, the *hot-air bath* or *pack*. If there be great distention of the serous cavities, interfering with the respiration, the *aspirator* should be used. Puncture of the skin may be necessary at times, and it is well accomplished with an ordinary cambric needle.

Cases due to *syphilis*, if the loss of renal structure is slight, are cured by a course of *hydrargyri corrosivum chloridum* and *potassii iodidum*, with *oleum morrhuæ*.

INTERSTITIAL NEPHRITIS.

Synonyms. Chronic Bright's disease; sclerosis of the kidneys; contracted kidneys; small red kidney; gouty kidney.

Definition. An inflammation of the intervening connective tissue of the kidney, chronic in its progress, resulting in an induration or hardening, with contraction of the organ; characterized by frequent voiding of large amounts of pale, albuminous urine, of low specific gravity, disorders of the gastro-intestinal and nervous systems, and a strong tendency to cardiac hypertrophy and changes in the vessels. Cases of nephritis are not uncommon in which albumin is never detected in the urine.

Causes. A disease of middle life, from forty to sixty years. Gout a common cause; lead cachexia; syphilis; alcoholism; opium habit; long-continued worry, anxiety or grief; alterations in the renal ganglionic centres (DaCosta and Longstreth).

I have slowly become convinced that the large increase of nephritic cases can be attributed to the widespread use of drugs of the salicylic order.

Pathological Anatomy. The *kidneys* are reduced in size. The *capsule* is thickened, opaque, and adherent. The *surface* of the kidney is granular, with cysts of various sizes, of transparent color, scattered irregularly over the surface. On section the *tissue* of the kidney is tough and resistant. The *cortical* portion is thin, from atrophy, being only a line or two in thickness. The *connective tissue* is greatly thickened, compressing the tubules into mere threads, the *glomeruli* being grouped together in bunches, owing to the wasting of the intermediate tubes. The *color* varies, from a darkish-brown to a yellowish-gray, according to the amount of blood in the organ.

The left side of the *heart* is hypertrophied, and there is also hypertrophy of the muscular fibre of the *arterioles* throughout the body; if the case is protracted the hypertrophied tissues undergo fatty degeneration.

In many cases there occur fatty degeneration of the retinal tissues, or sclerosis of the nerve-fibre layer, changes which are termed *retinitis albuminurica*.

The "*ganglionic centres*" undergo fatty degeneration and atrophy (DaCosta and Longstreth).

Apoplexy is a frequent termination of interstitial nephritis, the rupture of a cerebral vessel suggesting it to be a disease of degeneration.

Symptoms. Onset insidious, and often marked alterations in the kidneys, heart and vessels have occurred before the disease is recognized. There are no characteristic early symptoms in the majority of cases, the disease being apparently latent, until some special outbreak cause a more thorough examination of the patient, when interstitial nephritis is detected.

Any of the following symptoms may first attract attention : *Frequent micturition, increased* amount of *urine*, of a *pale color*, low specific gravity, containing a small amount of *albumin*, which may be absent for days, occasional *epithelial cells* and *hyaline casts*. No dropsy, but a little *puffiness* and *œdema* of the *conjunctivæ*—the Bright's eye. *Disorders of vision. Forcible cardiac action* with *high arterial tension*. Attacks of vertigo, headache, disordered vision, attacks of epistaxis and disordered stomach. Progressive anæmia is a frequent symptom. Any of the following symptoms, the result of *uræmia*, may occur : Persistent *dyspepsia*, occasional *vomiting*, regardless of food ; *headache, vertigo*, and *stupor*, or *drowsiness ;* violent *itching* of the skin ; *tremors, convulsions, epileptic* seizures, or *apoplectic attacks*.

The body weight declines, the skin is dry and scurfy, the strength fails, and shortness of breath on exertion is present.

The *termination* is usually by convulsions, coma, and death.

Complications. Bronchitis ; pneumonitis ; pleuritis ; pericarditis ; cardiac hypertrophy.

Diagnosis. Interstitial nephritis is most likely to be confounded with parenchymatous nephritis. The following table from Millard presents the most important points of difference between the two :—

In Chronic Croupous Nephritis.	In Chronic Interstitial Nephritis.
The urine is always albuminous.	Urine not constantly albuminous.
Urine usually scanty.	Urine usually abundant.
Dropsy and œdema almost always occur.	Dropsy seldom or never present; sometimes slight œdema.
Hypertrophy of the heart seldom exists.	Some hypertrophy of heart with increased arterial tension almost always present.
Specific gravity of urine usually higher than the normal. Urine darker and with less of a soapy appearance than in chronic interstitial nephritis.	Urine generally of a light color and low specific gravity.

In Chronic Croupous Nephritis.	In Chronic Interstitial Nephritis.
Uræmic symptoms less frequent than in chronic interstitial nephritis.	Uræmic symptoms are met with in their most pronounced form, and in severe cases usually occur.
Epistaxis and cerebral hemorrhages rare.	Epistaxis and cerebral hemorrhages frequent.
Occurs most frequently before the age of forty.	Occurs most frequently after forty.
Blood corpuscles and connective tissue shreds more frequently found in chronic croupous nephritis.	Absent in chronic interstitial nephritis.
	Development more gradual, the health of patient often less impaired, and duration longer than in chronic croupous nephritis.
Casts more numerous and in greater variety than in chronic interstitial nephritis; waxy, granular, fatty, and hyaline casts occurring.	Casts rare, the hyaline variety being most frequently met with.
Epithelia from the kidney and pus corpuscles more numerous than in interstitial nephritis.	Kidney epithelia and pus corpuscles scanty, and occasionally absent.
Urates and phosphates predominate; oxalates rare.	Oxalate of lime almost always occurs.
Albuminous retinitis rare.	Albuminous retinitis common.
Gangrenous erysipelas and phlegmenous swellings more common; also dyspepsia and anæmia.	
Visceral complications, as pneumonia, pleuritis, pericarditis, and bronchitis, not uncommon.	Visceral complications rare.
Diarrhœa sometimes.	
Cirrhosis of liver rare.	Cirrhosis the most frequent hepatic lesion.
Atheroma of arteries rare.	Atheroma common.

Prognosis. Pursues a very chronic course; cases recorded under observation eleven years. If the case is seen in its incipiency a cure is possible, but as a rule we say the termination is fatal.

Treatment. Regulated diet; diaphoretics; diuretics; avoid alcoholic stimulants. As nearly absolute rest as patient's general health will permit.

To prevent the growth of the connective tissue, the following remedies are recommended: *potassii iodidum*, *hydrargyri corrosivum chloridum*, gr. $\frac{1}{20}$, *aurii et sodii chloridum*, gr. $\frac{1}{20}$, *ferri iodidum*, and *arsenicum*.

Ferrum is as valuable in this as in the other forms of Bright's disease.

For *uræmia*, if patient is conscious, *purgatives*, *diaphoretics*, and *diuretics*. If unconscious, *hot air bath*, *morphina* and *pilocarpinæ hydrochloras*, or *caffeinæ citrata*., hypodermically, or *chloroform* inhalations, and watching the heart.

AMYLOID KIDNEY.

Synonyms. Chronic Bright's disease; waxy kidney; lardaceous kidney.

Definition. A peculiar infiltration into, or a degeneration of, the structure of the kidney, from the deposit of an albuminoid material, having a superficial resemblance to molten wax or boiled starch. Similar changes occur in the liver, spleen, intestines, and other organs.

Causes. The chief cause is prolonged suppuration, especially of the bones; coxalgia; syphilis; cancer; phthisis.

Pathological Anatomy. The kidney is uniformly enlarged. It presents a pale, glistening, translucent appearance, and has a doughy consistency. On section, the surface is homogeneous, anæmic, and whitish. The deposit occurs along the renal vessels and in the vascular tufts of the glomeruli, progressing until all parts of the organ are infiltrated. When the organ is thus infiltrated, the proper structure undergoes an atrophic degeneration, the result of pressure.

The reaction with iodine and sulphuric acid affords a certain test of the *amyloid* deposit. Brush over a section of the affected kidney a solution of iodine with iodide of potassium in water, when a mahogany color will be produced, and if diluted sulphuric acid is now added, a violet or bluish tint results. A very pretty reaction is to take a one per cent. solution of anilin violet, which strikes a red or pink color with the amyloid material, while the unaltered tissues are stained blue, making a beautiful contrast.

Similar changes occur in other organs of the body. With the amyloid change may be associated either parenchymatous or interstitial nephritis.

Symptoms. Associated with *wasting* are *œdema* of the lower extremities and *ascites*, with an *increased flow of urine*, pale, watery, and of low specific gravity, containing *albumin* and *hyaline casts*, which are transparent. If the amyloid change be associated with other forms of renal change, the urine will show the characteristics of such condition. A profuse, watery, and persistent *diarrhœa* caused by the amyloid changes in the intestinal canal.

Diagnosis. Differs from *parenchymatous nephritis* in its clinical history, and the fact of its always being associated with a suppurating disease.

From *interstitial nephritis*, in its history, character of the urine, *absence* of uræmia, cardiac hypertrophy, changes in the vessels, and the fact of its association with suppurating diseases and similar changes in other organs.

Prognosis. Controlled by the suppurating disease with which it is associated; the termination, when the amyloid change is fully developed, is unfavorable, death occurring within a few months, or, under favorable conditions, not for one or more years.

Treatment. Sustaining and symptomatic in character. Generous diet and the persistent use of *ferri iodidum*, alternating with *ammonii murias* and *oleum morrhuæ*.

If caused by syphilis, a thorough course of *potassii iodidum*, *ferri iodidum*, and *hydrargyri corrosivum chloridum*, with *oleum morrhuæ*.

If of syphilitic origin, the plan of Keyes (Dr. E. L.) is to be commended: "I think that a case treated from the first should receive mercury continuously in *small doses* (gr. $\frac{1}{35}$ to gr. $\frac{1}{50}$), for a period not less than two and a half years, or, in any event, until at least six months have passed after the entire disappearance of the clearly syphilitic symptoms."

PYELITIS.

Synonyms. Suppurative nephritis; pyelo-nephritis.

Definition. An acute catarrhal inflammation of the pelvis of the kidney; the term *pyelo-nephritis* is used when suppurative inflammation is superadded to the catarrhal inflammation. The disease is characterized by lumbar pains, irritability of the bladder, the urine

neutral or alkaline in reaction and milky in appearance; if *pyelo-nephritis* occur, symptoms of hectic fever and exhaustion are added, the urine containing pus.

Causes. Cold or exposure; cystitis; obstruction of the ureters by renal calculi; pressure from a tumor; prolonged use of bromides and other irritative drugs; rheumatism; sequelæ of infectious diseases.

Pathological Anatomy. The inflammation is *catarrhal;* it is characterized by injection of the mucous membrane of the pelvis of the kidney, with slight extravasations of blood; relaxation and softening, shedding of the epithelium, and the subsequent discharge of mucus and pus. If the morbid condition has existed for some time, the kidneys, one or both, are in a process of suppuration, they are enlarged, deeply congested, except where suppuration is proceeding, when they are of a yellowish-white color—*pyelo-nephritis.* Pus is constantly forming, and, if there be no obstruction, flows away with the urine; should there be an impediment to its escape, pus accumulates in the pelvis of the kidney, causing its distention, giving rise to the condition known as *pyelo-nephrosis.* The pressure caused by the obstruction finally leads to destruction of the entire organ, a mere sac, or *renal cyst,* remaining.

Symptoms. If caused by *cystitis,* symptoms of this condition occur first; if from *renal calculi,* its characteristic symptoms precede those of pyelitis.

Begins by *chilliness, feverishness, lumbar pains* following the course of the ureters, *frequent micturition,* the *urine milky* in appearance when voided, *acid* or *neutral* in reaction, and depositing a copious sediment, whitish or yellowish-white in color, containing only a small amount of albumin, no more than is due to the *pus.*

Cases of pyelitis due to renal calculi frequently show *hemorrhages;* the urine bloody after some extra exertion.

If *pyelo-nephritis* follow, symptoms of pyæmia supervene, to wit: *fever,* typhoid in character, low, muttering *delirium, subsultus tendinum, stupor,* decline in strength, and loss of flesh, with perhaps a *tumor* in the lumbar region.

If both kidneys are affected *uræmic* symptoms are frequent.

Diagnosis. From *cystitis,* by history, lumbar pains and *acidity* of purulent urine, the urine in cystitis being always *alkaline.* A microscopical examination of the urine will aid the diagnosis very much.

Perinephritis, a disease of the loose tissue, around about the kidneys, terminating in abscess, causing lumbar pain, increased by motion or pressure, hectic fever, sense of fluctuation over kidneys, the *urine remaining normal.*

Prognosis. Simple cases, where no obstruction to flow of pus, *recover* in a week or ten days. If obstruction of the ureter, the prognosis is grave. Suppurative cases unfavorable.

Treatment. Rest in bed. Milk diet. Free use of water to dilute the urine, and free diaphoresis. *Quinina* to keep down temperature, prevent formation of pus, and maintain the powers of life.

To change the character of the secretion, Prof. Da Costa strongly recommends *pix liquida;* other remedies are *oleum santali*, *copaiba*, *eucalyptol*, *terebinthina*, and *cubeba*. I have seen excellent results from a prolonged course of the Buffalo Lithia Springs water or the Rockbridge Alum Springs water of Virginia.

For renal hemorrhage, *alumen*, gr. xx, repeated p. r. n., is successful.

If *abscess* results, *aspiration*, *quinina*, and *stimulants*. Extirpation of the diseased kidney has been followed with fair health.

ACUTE URÆMIA.

Synonyms. Uræmic poisoning; uræmic intoxication; uræmic coma; uræmic convulsions.

Definition. A group of nervous phenomena, which occasionally develop during the course of acute or chronic Bright's disease, and other maladies, the result of the retention or accumulation in the blood of an excrementitious material, supposed to be *urea*, the flow of urine being either normal, lessened, or increased.

Causes. Suppression of urine, from acute or chronic Bright's disease, probably more frequent in chronic parenchymatous nephritis; cystic, tubercular, or cancerous kidney; the puerperal state; operations on the uterus, bladder, urethra, or rectum.

Symptoms. Uræmic intoxication is the result of the failure of the kidneys to perform their normal function of eliminating some one or all of the poisonous elements of the urine.

The toxæmia may develop suddenly, by a *convulsive* seizure followed by *coma*, or slowly and gradually. Usually the attack is preceded by a decrease in the urinary secretion and slight or marked

œdema in various parts of the body; although it must be borne in mind that in rare instances, during, or immediately prior to, the appearance of the uræmic phenomena, the normal urinary flow has been largely exceeded.

The acute outbreak may manifest itself in a variety of ways.

Gastro-intestinal variety. The patient suddenly experiences attacks of *vertigo*, *pallor* of face, *nausea* and *vomiting*, with *fever*, the temperature varying between 100° and 103°, *pulse tense* and *rapid*, *respiration hurried*, and the *urine* scanty with low specific gravity; unless symptoms are promptly relieved *convulsions* may occur, followed by *coma* and death, or *drowsiness* supervene, followed by coma, which is really nothing but a profound sleep. Rarely an acute maniacal outbreak follows the gastro-intestinal symptoms.

Convulsive variety. Without any appreciable prodromes, *epileptiform convulsions*, with or without loss of consciousness. The convulsions may consist of a single paroxysm, or a succession of fits may follow one another at intervals of a few minutes or several hours, the patient in a condition of more or less profound insensibility during the intervals. The fits almost exactly simulate true epilepsy. In this variety the *temperature* is high, from 103° to 106° or more, the *pulse rapid*, with or without tension, the *respirations* quickened. *Coma* followed by death is a very common ending of this variety of uræmia, or after a profound sleep of hours the patient gradually recovers his usual health. Alcoholic excesses are responsible for many of these attacks.

Cerebral variety, or *uræmic coma*. Develops either gradually with an increasing *drowsiness* associated with *headache*, and irritability of temper (mild mania). *Nausea*, *vomiting* and *rise of temperature*, often reaching 105°, rarely 107°, with rapid, full pulse, *or* the patient may fall suddenly into a condition of profound coma, the symptoms closely resembling an apoplectic stroke, except the high temperature. Uræmic coma is always accompanied with *rise of temperature* and *stertor*. "The stertor is peculiar; it is not the "snoring" of apoplexy, but a sharp, hissing sound produced by the rush of expired air against the teeth or hard palate." (Loomis.) The respirations are accelerated, the pulse rapid but minus tension. This variety may suddenly terminate fatally with a convulsion, or a deepening coma with prostration and cold, wet skin, with œdema of the lungs, or rarely, gradual recovery.

Diagnosis. Uræmic conditions closely resemble a number of conditions in which convulsions and coma are prominent symptoms. Much valuable assistance is obtained in the diagnosis by a knowledge of the condition of the kidneys. Always obtain a specimen of urine at once and subject to an albumin test at least.

Another valuable aid is the temperature record. I believe acute outbreaks of uræmia are always associated with a rise of temperature. The temperature is the result of the irritation of the heart-centres and not due to an increased arterial pressure.

Cerebral apoplexy may be mistaken for uræmic coma, or the reverse. The chief points of distinction are, in the latter the attack is usually in patients suffering from dropsy, and that the coma is not sudden in its appearance, but is generally preceded by other nervous phenomena, such as headache, vertigo, dimness of vision, obstinate vomiting, and convulsions. Again, the *uræmic stertor* is a sharp, hissing sound, while that of apoplexy is "snoring." Apoplexy is followed by paralysis, uræmic coma is not.

An *epileptic* seizure is preceded by the sharp cry and extreme pallor of the face, the countenance being dusky in uræmic convulsions.

Prognosis. An attack of acute uræmia is always a very grave condition. The prognosis depends upon the amount of retained poison, the length of time it has been retained, and the condition of the organs of elimination.

Treatment. Promptness and thoroughness is the essential point in the treatment of an uræmic outbreak.

For the gastro-intestinal variety, put patient to bed and administer the magnesium sulphate enema given below and order either *caffeina citrata*, gr. iij, every three hours, or the spartein and pilocarpine mixture mentioned below. As soon as the secretions have been started give one of the following powders every two hours until a dozen or more are used, followed by Hunyadi Janos water (℞. Hydrargyri chlor. mitis, gr. $\frac{1}{4}$–$\frac{1}{2}$; sodii bicarb., gr. ij; pulv. ipecacuanhæ, gr. $\frac{1}{6}$. M. et. ft. chart. No. j).

For the convulsive or cerebral variety, the indications are: *first*, to arrest the nervous phenomena; *secondly*, to promote elimination. Prof. Loomis has succeeded in meeting both of these indications by hypodermic injections of *morphina*, gr. $\frac{1}{6}$–$\frac{1}{4}$–$\frac{1}{2}$, repeated, if required, every two hours. He says: "The most uniform effect of morphine so administered is, first, to arrest muscular spasms;

second, to establish profuse diaphoresis; third, to facilitate the action of cathartics and diuretics, especially the diuretic action of digitalis."

Following the injection of morphina, *diaphoresis* should be promoted by means of the *hot-air bath*, or the *hot-wet pack*, or the hypodermic use of the *pilocarpinæ hydrochloras*, gr. $\frac{1}{12}$–$\frac{1}{6}$–$\frac{1}{4}$, provided no counter-indication to its use exists, or using at the same time frequent doses of *caffeinæ citrata*, gr. iij, by hypodermic injection.

The following combination has given excellent results in a number of cases when the patient was able to swallow :—

℞. Sparteinæ sulphat., ... gr. iv
Pilocarpinæ hydrochlor., ... gr. j
Infus. digital., ... f℥ij. M.

Sig.—Teaspoonful every half hour, hour, or two hours until effect.

If patient is unable to use the medicine by stomach the same drugs can be used by the hypodermic method, using digitaline cryst. (℞. Digitalinæ cryst., gr. $\frac{1}{100}$; pilocarpinæ hydrochlor., gr. ¼; sparteinæ sulph., gr. ½; aquæ destil. ♏xxx. M. Sig: As dose p. r. n.)

I have never observed the alarming symptoms of depression from the careful use of pilocarpine, mentioned by some observers.

The production of free diaphoresis alone must not mislead the physician, as unless the sweat contains urea or its products it is only depressing, and the clinical fact is that in uræmia the eliminating function of the skin as well as the kidney is in abeyance.

The *convulsions* are rapidly controlled by inhalations of *chloroform*, (although the after symptoms are badly influenced by the drug), or the internal or rectal administration of full doses of *chloral*, or in suitable cases by a free *venesection*. It not infrequently happens that upon opening a vessel the blood does not flow, or but a few drops slowly flows from the wound. If this obtains it is almost immediately changed by a hypodermic injection of *amyl nitrite*, ♏vj, with spts. ammoniæ aromaticus, ♏xv.

Diuresis is promoted by *infusum digitalis*, dry or wet cupping, poultices over the loins, and hot compresses of infusum digitalis over abdomen, or *caffeinæ citrata*, or *sparteinæ sulphas*, or *spiritus gloinoini*.

Catharsis is best promoted by *elaterium*, gr. $\frac{1}{12}$–$\frac{1}{8}$, or an Epsom salts enema. (℞. Magnesii sulph., ℥ij; glycerini, ℥j; aquæ bul., ℥iv. M. as enema.)

The febrile phenomena does not call for antipyretics. It is one of

the nervous phenomena of uræmia and is controlled by the means employed to eliminate the poison.

If symptoms of collapse develop, with cold, clammy skin, feeble, rapid pulse, and superficial respirations, at once administer *atropinæ sulphas*, gr. $\frac{1}{60}$, and bathe surface with hot water and alcohol.

Of late *sodii benzoas*, ʒj–ij, during the twenty-four hours has been lauded as an almost specific in uræmic intoxication. Under the action of this remedy the paroxysms lessen in severity, the intervals grow longer, and the convulsions after a time cease entirely. Profound sleep is induced by it, and during this the cerebral functions are restored. When albuminuria exists, a marked diminution occurs in the quantity present, or the albumin disappears entirely.

Milk, in as large quantities, diluted, as can be borne, should be the diet. The attack broken, the treatment resolves itself into that of the nephritic affection causing it.

RENAL CALCULI.

Synonyms. Nephro-lithiasis; gravel; renal colic.

Definition. *Renal calculi* are concretions formed by the precipitation of certain substances from the urine, around some body or substance acting as a nucleus.

Their presence may not be recognized until one or more attempt to pass along the ureters, when an attack of *renal colic* results; or, by irritation, *pyelitis* is produced; or, more rarely, they are voided by the urine without exciting any symptoms.

By *gravel* is meant very small concretions (sand), which are often passed in the urine in large numbers.

Causes. Occur at all ages; frequent before the fifth year, and from five to fifteen. Males are more liable than females. A special liability seems to exist in some families, but the precise etiology of calculi is not yet determined.

Varieties. 1. *Uric acid*, as calculi and gravel, and especially associated with the gouty diathesis.

2. *Urates*, chiefly urate of ammonium; nearly always in childhood.

3. *Oxalate of lime* or mulberry calculus; characterized by hardness, roughness, and very dark color.

4. *Phosphatic calculi* form as frequently in the bladder as in the kidney, and present a chalky or earthy appearance.

5. *Alternating calculi*, consisting of alternate layers of two or more primary deposits.

Anatomical Characters. In structure, a urinary calculus usually consists of a *central nucleus*, surrounded by the *body*, and outside of all there may be a phosphatic *crust*. The nucleus may or may not be of the same material as the rest of the stone, sometimes being a foreign body, mucus, or blood.

A section generally shows a *stratified* arrangement, or it may be partly or completely *radiated*.

Symptoms. The clinical signs of renal calculi are those consequent on the results of their presence, to wit: *renal hemorrhage*, *renal congestion*, *inflammation* terminating in *abscess*, *pyelitis* or *pyelo-nephritis*, *cystitis*, or *renal colic*.

The symptoms of *renal colic* begin abruptly, by severe, agonizing *pain* in the lumbar region following the ureters into the corresponding groin and thigh. *Pain* and *retraction* of corresponding testicle also of glans penis. *Face pale* and *features pinched*, the surface cold and damp. Irritability of the bladder, the urine passing in drops containing some blood. So severe is the pain at times that the patient may faint or pass into unconsciousness, or have a general convulsion. If both ureters are obstructed, *uræmic symptoms* will arise.

The paroxysm usually terminates suddenly after some minutes or hours, the stone escaping into the bladder.

Prognosis. Renal calculus is attended with many dangers. It may produce extensive disorganization of the kidneys, or its passage along the ureter may prove fatal. If the stone be very large, or if more than one, the prognosis is graver. Calculus is a disease very apt to recur. Renal sand (*gravel*) and small concretions may, after more or less delay, be voided with the urine.

Treatment. An attack of *renal colic* is best relieved by a hypodermic injection of *morphina* and *atropina*, and a warm bath or a suppository of *ext. opii*, gr. j, *ext. belladonnæ alco.*, gr. ss, repeated if needed.

For attacks of *gravel*, *liquor potassii citratis*, f℥ss, every three hours, and, if much *vesical irritability*, adding *tinct. opii camph.*, f℥ss–j.

For *renal hemorrhage*, Prof. Bartholow reports success with

℞. Extracti ergotæ fluidi,
Tincturæ krameriæ, ... aa . . . . f℥ij. M.
Sig.—℥j every two or more hours.

I have always successfully controlled renal hemorrhages with twenty-grain doses of *alumen*, repeated p. r. n.

For *uric acid calculi*, as a solvent, Buffalo Lithia Springs water or the Rockbridge Alum Springs water of Virginia, or *potassii tartraborates*, "obtained by heating together four parts of cream of tartar, one part of boracic acid, and ten parts of water. A scruple may be given three or four times a day, in water, largely diluted."

For *phosphatic calculi*, as a solvent, *ammonii benzoas*, well diluted and long continued.

CYSTITIS.

Synonym. Catarrh of the bladder.

Definition. An inflammation of the mucous membrane lining the urinary bladder, acute or chronic in its course, and of either a catarrhal, croupous, or diphtheritic character; characterized by rigors, moderate fever, hypogastric pain, frequent but scanty micturition, and severe vesical tenesmus, the urine containing pus (pyuria).

Causes. *Acute variety:* long retention of urine; foreign bodies in the bladder; pyelitis; urethritis; blows over the pubes; myelitis, and secondary to fevers or diphtheria. *Chronic variety:* following the acute variety; retention the result of enlarged prostate or an urethral stricture; calculi; gout; chronic Bright's disease.

Pathological Anatomy. In *acute catarrhal cystitis*, there first ensues hyperæmia of the mucous membrane of the entire or a portion of the bladder, manifested by redness, swelling, and œdema; followed by an increased secretion of the small glands at the base of the bladder, and an increased growth and consequent desquamation of the vesical epithelium, together with a copious generation of young cells; if the hyperæmia be decided, rupture of the capillaries and extravasation of blood occur.

If the inflammation be intense, suppuration of the submucous connective tissue may result, and ulceration of the mucous membrane permit the submucous abscesses to empty into the bladder.

If the inflammation be of a croupous or diphtheritic character, the morbid anatomy does not differ from the same variety of inflammations in other mucous membranes.

In *chronic cystitis* "the mucous membrane is thick, blue-gray in color, and very tough. Muco-pus and viscid mucus are formed in large quantities upon its surface. The muscular wall of the bladder may sometimes be half an inch thick, and the fasciculi give a ribbed

appearance to the internal surface, called the "columnar bladder." The hypertrophy of chronic cystitis may be eccentric or concentric. In some cases diverticuli are formed, in whose walls are dilated and tortuous veins. In nearly all cases bacteria are found in abundance." (Loomis.)

Symptoms. *Acute cystitis;* the onset is usually abrupt, by *rigors*, slight *fever*, loss of appetite, sleeplessness, a feeling of depression; *frequent micturition*, though the *urine* is only voided drop by drop, and its passage followed by distressing *vesical tenesmus*, the result of spasm of the bladder; *pain* over the pubis and in the iliac regions, of a dull character, at times becoming sharp and agonizing. *Burning along the urethra* adds to the distress of the patient.

The *urine* is cloudy, of an *alkaline* reaction, and at times is *fœtid*, the microscope showing *epithelium*, *pus*, and *red blood corpuscles*.

Chronic cystitis; the onset is gradual and insidious, and is excited by some obstacle to the evacuation of the urine, such as stricture, the presence of a stone in the bladder, or enlargement of the prostate gland. There are present dull *pain*, *frequent* but *scanty micturition*. The *urine* is *alkaline*, containing large amounts of *muco-pus* or *pus;* on standing, it deposits a thick, glairy, viscid sediment, in which, under the microscope, triple phosphates and large pus corpuscles, extremely regular both in contents and in shape, may be detected.

Although the quantity of urine voided by the patient is small, yet if immediately after micturition the catheter is used, several ounces of *fœtid*, *cloudy*, *alkaline urine* may be removed.

Patients with chronic cystitis usually present decided constitutional debility and mental depression.

Severe local pain, emaciation, and occasional bloody urine indicate ulceration of the vesical mucous membrane.

Diagnosis. *Pyelitis* has lumbar pains following the course of the ureters, frequent micturition without the severe vesical tenesmus; the urine, although cloudy, has an acid or neutral reaction.

Prognosis. The *acute variety* is, as a rule, good, being controlled by the cause.

The *chronic variety* continues for years, and after hypertrophy of the bladder is incurable.

Treatment. Rest in bed is invaluable. The diet must be restricted, all highly-seasoned articles being particularly interdicted; milk is the most suitable article.

Warm applications over the pubic region are of benefit, and leeching and cupping over the bladder are of service.

The urine should be well diluted by large draughts of pure water, and particularly the alkaline mineral waters, to wit: Farmville lithia, Buffalo lithia, Rockbridge alum, or Vichy waters. The following formulæ are of decided benefit:—

℞. Acidi benzoici,
Sodii borat., ... āā . . . . . ʒij
Infusi buchu, vel
Infusi uvæ ursæ, ... fʒvj. M.
Sig.—Tablespoonful every two hours, well diluted.

Or— ℞. Tinct. hyoscyami., ... fʒvj
Tinct. opii camph., ... fʒvj
Potassii bromidi.,
Sodii bicarb., ... āā . . . . . ℈viij
Liq. potassii citrat., ... q. s. fʒviij M.
Sig.—Tablespoonful every two or three hours, in water.

A valuable prescription is:—

℞ Ext. pichi fld. . . . . fʒj
Potassii nitrat. . . . . ʒj
Elix. simplicis . . . . . fʒiij M.
Sig.—One teaspoonful every two hours, well diluted.

For the *pain* and *tenesmus* relief is afforded by a suppository of *extractum opii* and *extractum belladonnæ*, repeated as needed.

The *vesical tenesmus* is often benefited by *extractum cannabis indicæ fluidum*, fʒss, every three or four hours.

Chronic cystitis. The bladder should be completely emptied with the catheter several times in the twenty-four hours.

The use of *eucalyptol*, gtt. x-xv, every four hours, well diluted, or a good preparation of *tar*, or *extractum grindeliæ fluidum*, ♏xx-fʒj, three or four times daily, or *oleum santali*, gtt. v-x, in emulsion or capsule after meals, are valuable remedies. *Acidum boricum*, gr. v-xv internally, has removed pus from the urine in chronic cystitis. Washing out the bladder with the following mixture is of decided benefit:—

℞. Sodii borat., ... ʒj
Glycerini, ... fʒij
Aquæ, ... fʒij
Sig.—fʒss-iss added to warm water and injected into the bladder once or twice daily.

The diet should be nutritious, but without spices of any kind. The free use of the alkaline mineral waters is of value.

MOVABLE KIDNEY.

Synonyms. Floating kidney; wandering kidney; ectopia renis.

Definition. A condition of the kidney, either congenital or acquired, in which the tissues around about the organ are so lax and the renal vessels so elongated as to permit the kidney to be moved in certain directions, causing a movable tumor in the abdomen.

Causes. The kidney is normally held in position by the layer of peritoneum which is attached to the anterior surface of its adipose capsule. In movable kidney, the adipose tissue in which the normal kidney is imbedded partly or wholly disappears.

The renal vessels are in many cases abnormally long. Relaxation of the abdominal walls from pregnancy or other causes. The use of tight corsets or girdles about the waist; violence; increased weight of the organ from disease; the pressure of tumors growing in the neighborhood of the kidney; the traction of hernias.

The condition may be congenital or acquired, more frequently the latter. It is far more frequent in women than in men.

Symptoms. Floating kidney may and often does exist without any noticeable symptoms, the condition being unknown until accidentally discovered by the physician while making a physical examination of the abdomen.

As a rule, however, patients experience a heavy, dragging pain in the abdomen, aggravated when walking or standing. There are also present gastro-intestinal symptoms, more or less constant, with melancholia, aggravated by the mental anxiety the presence of a *tumor* in the abdomen causes the patient, in spite of the assurances of the physician that it is not a cancer.

At times, from some unknown or unrecognized cause, the movable kidney swells and becomes very sensitive to the touch, and migrates a considerable distance from its normal position. Such an occurrence aggravates all the former symptoms mentioned. This condition has been ascribed to a twisting of the ureter and consequent retention of the urine in the pelvis of the kidney, or to a localized peritonitis, or to a partial strangulation of the kidney from compression or twisting of its blood-vessels.

Hysterical symptoms are frequently observed in women suffering from wandering kidney.

Diagnosis. The possibility of dislocation of the kidney is to be recollected in determining the nature of obscure tumors within the abdomen.

The late Prof. Austin Flint based the recognition of this variety of abdominal tumor on the following diagnostic points: "It is situated in the hypochondriac region. It has the size and shape of the normal kidney, and this may be determinable by palpation, which is most advantageously employed by placing one hand over the lumbar region and the other in front on the abdominal walls, and then making counter-pressure from one hand to the other. It is generally movable, and in some cases the organ can be restored to its proper situation."

Other tumors are to be excluded by the absence of their diagnostic characters.

Prognosis. It is a rare occurrence to have a fatal termination from movable kidney *per se*.

Treatment. Symptomatic. It is said that some of the inconvenience and sometimes suffering attending movable kidney may be lessened by means of an abdominal bandage, belt or supporter.

If attacks of pain and swelling occur, the patient should be placed in bed, have hot applications over the abdomen, and the use of opiates and attempts at replacing the organ.

Extirpation of a movable kidney has been successfully performed a number of times.

Nephrorraphy, an operation for fixation of the kidney by means of sutures, has been devised.

DISEASES OF THE BLOOD.

ANÆMIA.

Synonyms. Spanæmia; hydræmia.

Definition. A deficiency of red corpuscles in the blood, or of its more important constituents, such as albumin and hæmoglobin, or a reduction in the amount of blood as a whole; characterized by pallor and general weakness.

Oligæmia is a general lessened amount of the blood. *Ischæmia* is a localized anæmia.

Causes. *Predisposing.* Sex; females, pregnancy and menopause; heredity.

Exciting. Deficient food, air or sunshine; excessive work; mental worry; mental shock; prolonged and frequent nocturnal emissions; excessive nursing; chronic intestinal catarrh; Bright's disease; malaria; syphilis; cancer.

Pathological Anatomy. *Post-mortem*, the tissues are thin, shrunken and bloodless. If the anæmia has been of long duration, patches of fatty change are seen in the various organs. The blood has a brighter color, the result of diminution in the number of red corpuscles and the quantity of the hæmoglobin; it is thinner than normal, and coagulates slowly and imperfectly, from diminution of the fibrino-plastic constituent.

In health the blood of an adult contains about five million red corpuscles to the cubic millimeter (the female adult about half a million less). The white cells, in health, average about ten thousand to the cubic millimeter.

Symptoms. *Pallor*, gums, tongue, ear and conjunctivæ pale. *Muscular weakness*, inability for exertion. *Deficient appetite* and *impaired digestion*, attacks of *vomiting* the result of anæmia of the medulla oblongata. *Quickened respiration*, *irritable temper*, *vertigo* in the erect position, attacks of *swooning*, *hysteria*, and rarely *epilepsy*. *Irritable heart*, with soft *systolic basic murmurs*. Nocturnal emissions in male and deficient menses in female. *Marasmus* in children. More or less general *œdema* of the eyelids and ankles. Long continued, symptoms of fatty changes in various organs, or gastric ulcer result.

Diagnosis. The symptoms of anæmia are so characteristic that an error is impossible; the cause of it, however, may be hidden.

Prognosis. Favorable if treated early. If protracted, results in more or less general symptoms of fatty degenerations or ulcer of the stomach.

Treatment. Remove the cause. Easily assimilated, blood-producing diet. Fresh *air*, *sunlight* and *exercise* short of fatigue. The anæmic patient should spend several hours in bed during the daytime. Purgatives, with stomachic tonics, to promote digestion.

For the anæmia proper, *ferrum* in some form is the most valuable remedy, always remembering that it is not assimilated if the intestines

and liver be torpid. The albuminate of iron is a favorite form for anæmia with weak stomach.

The following alterative tonic, known as Smith's (Dr. A. H.) "four chlorides," is frequently of value:—

℞. Hydrargyri chloridi corrosivi, ... gr. j–ij
Liq. arsenici chloridi, ... ℥j
Tinct. ferri chloridi,
Acidi hydrochlorici dil., ... āā . . . ℥iv
Syrupi, ... ℥iij
Aquæ, ... ad . . . . . ℥vj. M.

Sig.—One dessertspoonful in a wineglassful of water after each meal.

Cases of anæmia with weak stomach can take the following "iron lemonade" with ease:—

℞. Tinct. ferri chloridi, ... ℥j
Acid. phosphor. dil., ... ℥ij
Syr. limonis, ... ℥iss
Aquæ, ... ℥ij. M.

Sig.—One teaspoonful well diluted.

CHLOROSIS.

Synonyms. Essential anæmia; green sickness.

Definition. A pronounced anæmia met with chiefly in young girls about the age of puberty, characterized by diminution in the percentage of hæmoglobin.

Causes. The true cause unknown. A disease for the most part of puberty. Most frequently seen in the ill-fed, over-worked town girls, who are deprived of sunshine and fresh air. Heredity is supposed to play a part in its causation. Hammond maintains "that it is an affection of the nervous system, the blood changes being secondary."

Pathological Anatomy. Death from chlorosis is such a rare occurrence that little data is known. Virchow pointed out the hypoplasia of the arterial system, many arteries being congenitally small. The body is usually well nourished and the subcutaneous fat well distributed. There is pallor of the organs and muscular system. The spleen, lymphatics and the marrow of the bones are not affected.

Symptoms. The condition is associated with disorders of men-

struation. The young girl experiences a *change of disposition*, becoming *morose* and *despondent*, rarely, *hysterical*, or melancholiac.

"As respects the actual condition of the sexual organs, there are two forms of derangement which happen in chlorosis; there are the *amenorrhœic* form and the *menorrhagic* form."

After an attack of menorrhagia or after the failure of the flow to appear, the changes occur. The complexion changes, *blondes* becoming pallid, waxy and puffy without œdema; *brunettes* becoming muddy and grayish in color, with bluish-black rings under the eyes. Weariness and fatigue upon the least exertion; the heart irritable, with shortness of breath, pulse full but soft, and at times pulsations in the peripheral veins. The appetite is vitiated, the digestion imperfect; attacks of gastralgia are frequent.

A not infrequent complication is *gastric ulcer*. Phthisis develops in those having the slightest predisposition.

Examination of the blood shows a relative decrease in quality and quantity of the hæmoglobin, resulting in the blood being paler than normal. The red-corpuscles are also lighter in color and show less tendency to form rouleaux: their character also changes, not all being of uniform size, some normal, others small (microcytes), others unusually large (macrocytes), others irregularly shaped (poikilocytes). The number may be normal, 5,000,000 to the cubic millimeter, or the number is occasionally increased, but it is usually lessened, there being as few as 3,000,000 or 2,000,000.

The white-corpuscles are usually normal in number, but in some instances their number is increased (leucocytosis). Rarely granular bodies are found in the blood which are generally regarded as the products of the degeneration of the white blood-corpuscles.

Diagnosis. The disease is usually recognized at once by the color of the patient whence its common name, green sickness.

The circulatory symptoms and slight œdema may be mistaken for cardiac or nephritic diseases.

Prognosis. The liability to complications and also to relapses, and the lack of knowledge of the true cause, makes the prognosis always uncertain.

Treatment. Three indications to be met in the treatment of chlorosis, plenty of food, fresh air and ferrum. The form of iron is immaterial. The *tinctura ferri chloridi* is the preparation usually prescribed.

The following is *Blaud's* formula, so highly lauded by Niemeyer:—

℞. Pulv. ferri sulph.,
Potassii carbonat., puræ, . . . āā . . . ʒ ss
Tragacanthæ, ... q. s. M.
Ft. pil. No. xcvj.
Sig.—One to three or four pills three times daily.

In some instances *ferrum* alone does not seem to answer; in such cases the addition of *arsenicum* is valuable; a good combination is—

℞. Ferri arseniatis, ... gr. $\frac{1}{12}$–$\frac{1}{6}$
Ext. nucis vomicæ, ... gr. $\frac{1}{6}$–$\frac{1}{4}$ M.
Ft. pil. No. 1.
Sig.—After meals.

Or:—

℞. Liq. arsenici chloridi, ... fʒ ij
Tinct. ferri chloridi, ... fʒ vij
Glycerini, ... fʒ j
Elix. aurantii, ... q. s. ad . . . fʒ iij. M.
Sig.—One teaspoonful after meals in water.

PROGRESSIVE PERNICIOUS ANÆMIA.

Synonyms. Idiopathic anæmia; anæmatosis; essential anæmia; anæmia of fatty heart.

Definition. A pernicious, progressive form of anæmia, of unknown cause, usually resisting all treatment, and toward its termination associated with fever.

Causes. The underlying cause of idiopathic anæmia is not known. Among the exciting causes may be mentioned, pregnancy, syphilis and great worry.

Pathological Anatomy. The blood is scanty and pale, with diminished red corpuscles, and hæmoglobin, showing a very feeble tendency to coagulate. There is no increase in the white corpuscles.

The *marrow* in adult bones becomes fœtal, red and adenoid, and contains microcytes; several other changes have occurred secondarily in the marrow.

Secondary to the anæmia, the heart, larger arteries and certain capillary tracts exhibit circumscribed or diffused fatty degeneration.

The liver, spleen, kidneys and stomach are decidedly anæmic, causing fatty changes in those organs. The skin may contain

petechiæ of a purplish or brownish tint, and internal hemorrhages are not infrequent; retinal hemorrhage is rarely wanting.

There is not much emaciation, though the pallor is pronounced.

Symptoms. It begins insidiously, with increasing *languor* and *pallor*, the *muscular weakness* compelling the patient to take his bed. *Cardiac palpitation*, *dyspnœa*, attacks of *syncope*, *œdema* and swelling about the ankles, with *petechial* spots scattered irregularly over the surface; tenderness over the sternum and other superficial bones is a frequent symptom.

The appetite is wanting, and nausea and vomiting occur, associated with marked *dyspepsia* and persistent *diarrhœa*. As the disease progresses a remittent form of *fever* develops, the temperature frequently showing 102–104° F.

Disorders of vision are the result of the *retinal hemorrhage*. The cardiac sounds are feeble and associated with soft basic or anæmic murmurs.

The *blood* shows under the microscope the changes described in chlorosis, save the red corpuscles may be reduced to as few as 500,000 to the cubic millimeter.

Diagnosis. Progressive pernicious anæmia is distinguished from simple anæmia and chlorosis by the greater severity of the former. From leucocythemia by the normal-sized spleen and liver, and the absence of increase in the white corpuscles.

Prognosis. Unfavorable as a rule, although recoveries occur, but relapses frequent.

Treatment. The employment of *arsenicum* either alone or combined with *ferrum* has considerably changed the prognosis of pernicious anæmia. The arsenicum must be pushed to the extreme point of toleration and continued for a long time.

Rest in bed and a liberal nutritious diet are also essential.

LEUCOCYTHEMIA.

Synonyms. Leucæmia; white cell blood; white blood; anæmia splenica.

Definition. A condition in which there is an enormous increase in the number of white blood corpuscles, with enlargement of the lymphatic glands, spleen, and often of the bone marrow; viz.:

splenic, *lymphatic*, or *myelogenic*, and is characterized by symptoms of pronounced anæmia.

Causes. The real cause and nature of the affection is unknown.

Pathological Anatomy. The *spleen* is increased in size, density and firmness; the *lymphatic glands* all over the body also enlarge, but are soft to the touch, often fluctuating; the *marrow of the bones* changes from its normal rose color to that of a greenish-yellow; the *liver* also enlarges enormously. The *blood* is paler than normal, its specific gravity reduced from 1.055 to 1.040 or lower, and the *white corpuscles* increased in number and in size, the *red corpuscles* being lessened in number and size.

Symptoms. The onset is insidious and the early progress of the disease is identical with that of simple anæmia, accompanied by *swelling* of the *abdomen* and a feeling of *fullness* and *pain* in the *splenic region*, due to the enlargement of that organ.

In the *lymphatic variety*, enlargement of the glands in the groin, neck, and axillary region are associated with the *great pallor*.

In the *myelogenic variety*, the bones, more particularly the ribs and sternum, are tender on pressure, the patient developing a waxy appearance.

In each variety the appetite is poor, the digestion feeble, the bowels loose, the patient easily fatigued, with cardiac palpitation, and dyspnœa, with œdema of the eyelids and ankles. The urine is scanty and of high specific gravity—1.020-1.030. Fatal hemorrhages occur near the termination of the disease.

The *blood* is pale and watery. The white blood corpuscles are enormously increased in number. The average number of white corpuscles to the cubic millimetre normally is about 10,000. Cases are recorded in which the number of white blood corpuscles has equaled or even exceeded the red blood corpuscles. The size of the white corpuscles varies in different cases and also in the same case.

The red blood corpuscles are frequently decreased in number and size.

Diagnosis. This should cause but little trouble if enlarged spleen, lymphatic glands and tender bones are associated with great pallor, and the characteristic appearance of the blood as demonstrated by a "puncture of the finger of the patient and receiving the blood on a piece of white linen or a lawn handkerchief, and placing by the side of it a similar stain of blood from a healthy subject. The full

color of the latter contrasts strikingly with the stain of the former, which is hardly of a blood color and translucent."

Prognosis. Unfavorable. The average duration is between two and three years. Cases of what are termed "Acute leucæmia," proving fatal in a few months, occur.

Treatment. Symptomatic. A combination of the following remedies with generous diet, fresh air, sunshine, pleasant surroundings, *oleum morrhuæ* and the *hypophosphites* have at times seemed of temporary utility, to wit: *quinina, arsenicum, ferrum* and *ergota*.

HODGKIN'S DISEASE.

Synonyms. Pseudo-leukemia; Pseudo-leucocythæmia; lymphatic anæmia; lymphadenoma.

Definition. An affection characterized by hypertrophy of the lymphatic glands in various parts of the body, associated with marked anæmia.

Cause. Unknown.

Pathological Anatomy. A hyperplasia of the lymph glands interfering more or less with their functions. The enlargement may be confined to one isolated gland or a number may be affected in different portions of the body, or a number in one location may be simultaneously affected causing a tumor varying in size from an egg to an orange or even a cocoanut.

The spleen and liver are involved in two-thirds of the cases. "The marrow of the long bones may be converted into a rich lymphoid tissue" (Osler).

The red blood corpuscles are decreased in number and altered in size and shape; the white blood corpuscles are often increased in number

Symptoms. A slowly developing anæmia with isolated or diffused enlargement of the lymphatic glands. As the condition develops, fever of a remittent character occurs, with feeble cardiac action and shortness of breath. Hemorrhages may occur. The patient grows progressively worse with all the associated symptoms of deficient blood, death occurring by asthenia.

Diagnosis. A study of the clinical history will prevent error, as tubercular or scrofulous glands are accompanied with tubercular changes in the lungs, and do not present the same blood-changes as Hodgkin's disease.

Prognosis. Unfavorable. The progress may be slow, but it is none the less toward a fatal termination.

Treatment. The indications are all toward a building up of the blood. Amongst the remedies recommended are *arsenicum*, *phosphorus*, *ferrum*, *quinina*, and *oleum morrhuæ*. Excision of the glands in the early stage may be practiced.

ADDISON'S DISEASE.

Synonym. Melasma supra-renalis.

Definition. "The bronzed-skin disease." Thus defined by Averbeck: "A well-marked constitutional disease, exhibiting itself locally as a chronic inflammation of the supra-renal capsules, but in its essence consisting in a peculiar anæmic condition, always tending toward death, which is characterized by intense development of pigment in the cells of the rete malpighii and in the epithelium of the mucous membrane of the mouth."

Causes. Obscure. Tubercle, scrofula, and syphilis have each been given as the cause.

Pathological Anatomy. A low form of inflammation, terminating in degeneration of the supra-renal capsule. The blood is deficient in fibrin and red corpuscles, with a slight increase of the white corpuscles. Fatty degeneration of the heart and vessels has been observed in some cases.

"The most striking change during life—the abnormal pigmentation—is due to the deposition of granular pigment in the cells of the rete malpighii, in the papillary portion of the cutis, and even in the connective tissue corpuscles. No change occurs in the proper structure of the skin. Similar pigment deposits occur in the mucous membrane of the mouth, especially along the edges of the teeth."

"The disease of the supra-renal capsules excites an irritation of the vaso-motor system—the trophic system—which leads to the pigmentation."

Symptoms. The onset of the disease is insidious, with a feeling of extreme *languor*, *muscular fatigue*, *asthenia*, *indigestion*, *anorexia*, *dyspnœa*, *cardiac palpitation*, *vertigo*, *melancholia*, and excessive drowsiness.

The surface is first pale, then changes to a hue like that of *melanæmia*, changing to *icteroid*, finally resembling the color of a mulatto, and then to a *lustreless bronze*. These changes also occur on the mucous membrane of the lips, tongue, gums, and mouth.

Prognosis. An incurable disease. Duration, a year or two.

Treatment. Symptomatic.

HÆMOPHILIA.

Synonyms. Hemorrhagic diathesis; "bleeder's disease."

Definition. A congenital condition characterized by a tendency to uncontrollable hemorrhages, with or without abrasions.

Cause. Hereditary.

Symptoms. The *bleeding* appears about the period of first dentition, and consists of spontaneous *hemorrhages* from the mucous membrane of the nose, mouth, lungs, stomach, intestines, and genito-urinary passages, or in *perfect cases* hemorrhages occur directly from the fingers, toes, lobes of the ears, back of the hands or arms, without any apparent change in the skin, and continue in spite of the most powerful means, for days or weeks. *Traumatic hemorrhages* occur if an injury of any kind is sustained about the period of the development of the bleeding.

Epistaxis is the most common form of all those named.

Attacks of arthritis with fever, occur with hæmophilia, resembling acute rheumatism.

As a result of the great loss of blood, the subject suffers from all the symptoms of profound anæmia.

Diagnosis. It is impossible to confound the "bleeder's disease" with any other affection.

Prognosis. Death is the usual termination within a few weeks from the time of its development, which may not be until adult life.

Treatment. Entirely symptomatic. It is claimed that "*potassii chloras*—an ounce of a saturated solution three times a day—combined with *tinctura ferri chloridi*," will eradicate the constitutional tendency.

SCORBUTUS.

Synonym. Scurvy.

Definition. A peculiar condition of malnutrition or anæmia, gradually developing upon a dietary deficient in fresh vegetable material; characterized by decided anæmia, debility, mental lethargy, petechiæ, and a swollen and spongy state of the gums, with a tendency to bleed upon the slightest irritation.

Causes. The disease only occurs when fresh vegetable nutriment or some appropriate substitute has been for a time partially or com-

pletely withheld. It is held that the diet alone is not sufficient to cause the disease, the mental factor of depression of spirits, or in some cases home-sickness (nostalgia) must be associated.

It is sometimes classed as an infectious disease, due to a peculiar germ, a view which is gaining ground.

Pathological Anatomy. An undetermined derangement in the composition of the blood, with diminished proportion of the potash salts. Spleen enlarged. The tissues are wasted and present extravasations, due to either one of or the combined presence of the following conditions, to wit: liquid condition of the blood, allowing it to escape from the vessels, alterations in the walls of the vessels, or a vaso-motor paralysis.

Symptoms. General weakness, lassitude, indisposition to either mental or physical exertion. The skin is dry, rough, and of a muddy pallor, the face pale and bloated. *Swelling* and *sponginess* of the *gums*, with great tendency to bleed and an exceedingly *offensive breath*. *Looseness of the teeth, hemorrhages* from mucous surfaces, and *extravasations of blood* within and beneath the skin. The *lips are pale*, which is in striking contrast to the *redness of the gums;* the eyes are sunken and surrounded by dark blue circles.

Hemorrhages occur from the stomach, mouth, bronchial tubes, intestinal canal and vagina. The skin is dry and rough, resembling that of a plucked fowl. Œdema of the face and ankles not infrequent.

Depression of the spirits is characteristic. Palpitation and dyspnœa on exertion. Urine high colored, speedily becoming fœtid.

The patient usually longs for *fresh vegetables* and *fruits*.

Complications. Dysentery. *Scorbutic dysentery* is a frequent complication. It may co-exist with typhoid and typhus fever.

Prognosis. Favorable, if early and properly treated.

Treatment. The chief indication is the assimilation of the alimentary principles needed for the healthy constitution of the blood and the invigoration of the system.

The juice of lemons, oranges, and other fruits; it is wonderful what improvement will follow the use of two or three lemons daily. Antiscorbutic vegetables, to wit: raw cabbage, cresses and raw potatoes, in conjunction with meats, milk and farinaceous food.

Improve the appetite and digestion by the use of *strychnina, quinina, mineral acids* and bitter *infusions*. *Potassii chloras*, locally, will relieve the oral symptoms.

PURPURA.

Synonyms. Hæmorrhœa petechialis; Morbus maculosus Werlhofii.

Definition. An acute disease, characterized by purplish discolorations of the skin, the result of hemorrhages into the upper layers of the cutis and beneath the epidermis. When the purpuric spots are tiny, like a pin-point, they are termed petechiæ; when larger in size they are termed ecchymoses.

Varieties. *Purpura simplex; purpura hæmorrhagica; purpura urticans; peliosis rheumatica.*

Causes. Not properly understood, a special germ supposed to be the cause. It may occur at any age, but is especially frequent in children and elderly people. Its occurrence after the ingestion of certain articles of diet has been observed.

Symptoms. *Purpura simplex* is the mildest form of the affection, and is characterized by the *sudden* appearance of *small, bright red* spots—a cutaneous hemorrhage—most commonly on the legs, associated with slight lassitude, mild febrile reaction, and *aching pains* in the limbs. The hue of the spots rapidly fades to a purplish color and slowly disappears. Relapses are common.

Purpura hæmorrhagica has in addition to the *eruption* of purpura simplex—the cutaneous hemorrhage—a flow of blood from the free surface of mucous membranes. The most common hemorrhage is *epistaxis*, slight or profuse. Other hemorrhages are *hæmatemesis, melæna, hæmaturia, hæmoptysis, menorrhagia*, and also into the substance of the mucous membranes of the palate, cheek, and gums. This variety is associated with great debility and depression, moderate fever and disorders of digestion. Marked *anæmia* results from the hemorrhages.

Purpura urticans is a combination of *urticaria* and *purpura simplex*. It is characterized by rounded and reddish elevations of the cuticle, resembling wheals, but which are not accompanied, like the wheals of urticaria, by any sensation of itching or tingling. They are usually seated on the legs, thighs, breast, and arms, and are interspersed with petechiæ. They gradually form and subside within twenty-four or thirty-six hours. Relapses are frequent.

This variety is also associated with malaise, moderate fever, and pains in the limbs.

Peliosis rheumatica (Schönlein's Disease) is characterized by *multiple arthritis* and a *purpuric* eruption; frequently the arthritic symptoms are associated with *urticaria* or with *erythema exudativum*. Œdema is often marked, as is the fever, sore-throat and general constitutional symptoms. The eruption is sometimes of vesicles—*pemphigoid purpura*.

Diagnosis. The purpuric eruption in each variety of the affection is so characteristic that an error seems impossible.

Prognosis. Purpura simplex and purpura urticans are favorable, but relapses are very frequent. Purpura hæmorrhagica is always a grave disease, often proving fatal from exhaustion, or more rarely, from cerebral or pulmonary hemorrhage. Peliosis rheumatica is often a severe affection, but recovery is the rule.

Treatment. Rest and a concentrated nutritious diet, and the moderate use of stimulants and tonics. *Arsenicum* in large doses is often valuable, using it in the form of *liquor potassii arsenitis*, to combat the resulting anæmia.

The internal use of *oleum terebinthinæ* is one of the most reliable remedies for all forms of the disease. The following is an eligible formula:—

℞. Ol. terebinthinæ, ... f℥ ij
Ol. amygdalæ express., ... f℥ j
Tinct. opii deodorat., ... f℥ ss
Mucil. acaciæ, ... f℥ j
Aq. laurocerasi, ... ad . . . . f℥ iij. M.

Sig.—One tablespoonful every three or four hours.

Among the other numerous remedies suggested, the most reliable have been *acidum sulphuricum dilutum* and *tinctura ferri chloridi*. Good results have followed *acidum carbolicum*, gtt. ij–iij every three hours, in cases seen by the author, and a particularly persistent case was cured by full doses of *potassii iodidum*.

"If hemorrhages that are threatened come on with a strong pulse, flushed face, headache and excitement, *digitalis*, *quinina*, and *ergota* are the approximate medicaments" (Bartholow.)

Argenti nitras, gr. $\frac{1}{12}$–$\frac{1}{4}$, three or four times daily is of value in purpura hæmorrhagica. Argentum is said to have a specific influence on the capillary circulation by its impression on the vaso-motor nerves.

Locally, to arrest bleeding, astringents and either hot or cold water or ice.

ACUTE GENERAL DISEASES.

PAROTIDITIS.

Synonyms. Parotitis; mumps.

Definition. An acute specific *infectious* inflammation of one or both parotid and other salivary glands and the surrounding connective tissue, with a very strong tendency to migrate into the mammæ or testes; characterized by pain, swelling and disordered function of the glands.

Causes. A specific poison. Contagious. Occurs in epidemics, although isolated cases are seen. Males more liable than females. The most common ages between five years and puberty. As a rule, it occurs but once in the same individual.

The *period of incubation* is from two to three weeks.

Pathological Anatomy. There is inflammation of one or both parotid glands, and in severe epidemics the cellular tissue pervading the gland is involved.

The catarrhal inflammation begins in the gland ducts and rapidly extends to the gland proper. There is congestion, swelling, and an infiltration of serous fluid, with more or less infiltration of the adjacent tissues. The swelling may suddenly reach an enormous size and as suddenly decline, the gland returning to its normal condition, or, rarely, an abscess results, with partial or complete destruction of the gland. Occasionally the submaxillary gland is involved, also the mammæ and testes.

Metastatic parotiditis occurs secondary to severe blood poisoning, as in pyæmia, typhoid or typhus fevers, or diphtheria. The usual termination of secondary parotiditis is by suppuration and destruction of gland structure.

Symptoms. The onset is rather sudden, by *malaise*, *chill*, *fever*, 101°–103° F., *quick pulse*, *headache*, *dry skin*, *scanty urine*, followed within a day or two by *stiffness* at the angles of the jaw, *swelling* of the *parotid* and other salivary glands, *pain*, increased by moving the jaws, with *general œdema* of the affected side of the face, at times the *skin* being *reddened*. *Salivation* is frequent, and occasionally deafness occurs.

The swelling and other glandular symptoms subside about the sixth or seventh day, to be followed by restoration to health, or, what is more common, the involvement of the *opposite gland*.

At any time during the disease *metastasis* to the *mammæ*, *ovaries* or *testes* is apt to occur, when the symptoms peculiar to such affections will be added. It has been noted that a *continuance* of the *temperature* after the decline of the parotid symptoms has begun, usually is significant of *metastasis*. It is claimed that the involvement of other organs during the course of mumps is not an example of metastasis, but is a true transfer of the disease.

Diagnosis. An error seems impossible.

Prognosis. Simple mumps, favorable; the chief danger being from the altered function of the mammæ, ovary or testes after *metastasis*.

Treatment. The disease being self-limited, the indications are entirely symptomatic, with attention to the secretions, although *extractum pilocarpi fluidum*, ♏x–xxx, repeated, has been used with varying success as a specific.

Locally, either cold or warmth to the affected gland, which ever is most agreeable, or equal parts of *unguentum belladonnæ et hydrargyri*.

If the swelling shows a tendency to linger, use small blisters over the part and administer *potassii iodidum*; if suppuration occur, evacuate pus, apply poultices and administer *quinina*.

If orchitis occur, the use of the *belladonna* and *mercurial ointment* or the *ice bag* to the inflamed testicle, and the internal use of *tinctura pulsatillæ* gtt. iij–v every hour or two, or *potassii iodidum*.

DIPHTHERIA.

Synonyms. Putrid sore throat; malignant ulcerous sore throat; malignant quinsy; membranous angina.

Definition. An acute, specific, constitutional disease, both *epidemic* and *contagious*, beginning by an affection of the throat, characterized by a local exudation and glandular enlargements; attended with fever, great prostration of the vital powers and albuminuria, and having for its sequelæ various paralyses.

Causes. A *specific germ*, the Klebs-Lœffler bacillus. It is pre-eminently a disease of childhood. It is apt to recur in those who

have once been affected. All conditions of bad hygiene increase its virulence and diffusion, although the chief cause of its spread is *contagion*.

The poison exists in the exudation and secretions of the fauces and saliva, but not in the breath, and floats in the atmosphere at a considerable distance from the patient. The virus adheres to the clothing, the bedding, the furniture, and the room which the patient occupied.

The *period of incubation* is from three to five days.

Pathological Anatomy. The *diphtheritic* inflammation differs from either the *croupous* or *catarrhal* form, in that the exudation is not only *upon*, but also *within*, the substance of the mucous membrane.

At first there is *redness*, which may begin in any part of the throat, associated with *swelling* and an *increased secretion* of viscid mucus. The redness spreads over the entire mucous surface, when the *exudation* makes its appearance. The deposit may commence from one or several points, such as one tonsil, the soft palate, or the back of the fauces, which, however, speedily extend and coalesce, forming extensive patches, or cover uniformly the entire surface.

The patches are of variable thickness, which is increased by successive layers being formed underneath.

The *color* is usually gray, white, or slightly yellow, but may be brownish or blackish, the *consistence* ranging from "cream to wash leather."

On removing the membrane, which is accomplished with more or less difficulty, a raw bleeding surface is exposed, and at times an ulcer, which is speedily covered with a fresh deposit.

If the exudation separate itself, it is either not renewed at all or only in thinner films.

The exudation or membrane, examined by the microscope, is composed of fibrin, pus corpuscles, epithelial granular cells, and the Klebs-Læffler bacillus and other pathogenic bacteria.

If the *larynx*, *trachea*, or *nasal* mucous membranes participate in the disease, the *croupous* and not the *diphtheritic* form of inflammation occurs.

The *lymphatic glands* of the neck, whose vessels originate in the faucial tissues, are enlarged and inflamed, and contain large numbers of *bacteria*, probably originating as the result of decomposition.

The muscular tissue of the *heart* becomes soft, is easily torn, and its fibrillæ are far advanced in granular degeneration. Ulcerative endocarditis has been frequently observed.

The *kidneys* undergo a granular degeneration in severe attacks.

The *blood* undergoes alteration, being black and fluid.

Symptoms. Following the law of *contagious* diseases, the symptoms vary in intensity in different cases, the prominent symptoms being often disproportionate to the gravity of the attack.

The *invasion* may be *mild*, with *rigors* succeeded by moderate *fever*, *headache*, *languor*, *loss of appetite*, *stiffness of the neck*, *tenderness* about the *angles of the jaw*, or *slight soreness of the throat*.

In other cases the *invasion* is more *abrupt* and *severe*, with *chilliness* followed by great *febrile* reaction, 103° to 105° F., *pain in the ear*, *aching of the limbs*, *loss of strength*, *painful deglutition* and *swelling of the neck*, compelling the patient to take to bed from the onset.

The *appetite* is poor, the *tongue* slightly coated, sometimes more or less exudation appearing upon it, the *bowels* being either regular or slightly relaxed. The *pulse*, at first full and strong, soon becomes either rapid or slow, but *compressible*. The *urine* is scanty, high colored and contains *albumin*.

The *local* symptoms in the majority of cases are associated with the throat. The patient complains of a frequent and persistent desire to hawk, in order to clear the throat. On *inspection* the fauces are seen *red* and *swollen* and more or less covered with the diphtheritic *exudation;* sometimes the *tonsils* and *uvula* are greatly *swollen* and spotted with exudation. In severe cases, more or less *ulceration* or *sloughing* may be observed. Not infrequently fragments of exudation, the *false membrane*, are expectorated, with particles of the ulcerated tissues, having an *offensive odor*, which is transmitted to the breath. The *lymphatic glands* of the neck are *enlarged* and *tender*, and in severe cases the tissues of the neck are greatly tumefied.

Extension to the *nasal cavities* causes a *sanious* and *offensive* discharge from the nose, with attacks of *epistaxis*.

Extension to the *larynx* is indicated by *hoarseness* or *complete loss of voice*, *croupy cough* and obstructive *dyspnœa*, which often becomes urgent, the breathing being *noisy* and *stridulous*, and subject to paroxysmal exacerbations. If the inflammation extend to the *bronchi*, the breathing becomes still more embarrassed.

Duration. Ranges from two to fourteen days, an average being about nine days, although complications and sequelæ may prolong its course.

Relapses are not uncommon.

Sequelæ. Those who recover from a severe attack remain often for weeks with a *pale* and *cachectic* appearance, due to the profound blood alteration.

Paralysis is a common sequela, following the mild as often as the severe attacks. Usually not occurring until the patient seems fully convalescent.

Pharyngeal paralysis is the most common, causing difficulty or inability of *deglutition*, fluids regurgitating through the nose.

Cardiac paralysis, bradycardia, is not infrequent, the pulsations descending to 60, 50, 40, and in a case seen by the author, to 20 per minute. Heart failure and fatal syncope may occur at any time during the disease.

Diphtheritic paralysis may affect the motor muscles of the eye, causing *strabismus;* the muscles of one side, *hemiplegia;* of the legs, *paraplegia;* and of the bladder, leading to *retention of urine* or difficulty in voiding it.

Multiple neuritis with the attending loss of power is a rare sequela.

Sensation is also *diminished* in the paralyzed parts.

Diagnosis. From *follicular ulceration of the tonsils*, which is frequently termed diphtheria, by the slight or absent systemic symptoms, the ulcerated condition being limited to the tonsils, but often one, and the absence of glandular enlargement and following palsies.

From *pharyngitis*, by the absence of exudation and loss of faucial tissue and constitutional symptoms.

From *scarlatina*, by the presence of the eruption and the absence of membrane in the fauces. The association of scarlatina and diphtheria must not be forgotten.

From *membranous croup*, by the difference in the constitutional symptoms; croup appears sporadically and is not contagious, diphtheria being highly contagious and frequently occurs in epidemics; in diphtheria of the larynx, the depression is clearly that of blood-poisoning, while in croup, the depression is in proportion to the mechanical obstruction of the respiration by the membranous exudation. The pathology of croup is simple and easy of investigation; diphtheria is obscure in its etiology and progress. The temperature

record of croup is a high one until carbonic acid poisoning is imminent from the mechanical obstruction to respiration, while in diphtheria, the tendency to a decline in the temperature after the fourth day is nearly characteristic, regardless of the amount of laryngeal obstruction. In croup the pharynx contains no membrane, and is but slightly, if at all, inflamed, and associated trouble in the nose is of the rarest occurrence, the very reverse obtaining in diphtheria. In croup the laryngeal symptoms are from the onset, while in laryngeal diphtheria the pharyngeal symptoms almost always precede. In croup glandular involvement is a clinical novelty, as are subsequent palsies, while glandular involvement and various palsies are the rule in diphtheria. Albuminuria is the rule in diphtheria, seldom occurring in croup.

Prognosis. Always grave, but more so in children than in adults. Its gravity, in the majority of cases, is proportionate to the local symptoms. The average mortality is about *ten per cent.*

Favorable indications are, moderate fever, strength slightly impaired, a good constitution, and moderate exudation.

Unfavorable indications are, high fever, great depression, spreading exudation, great swelling of the cervical glands, large amount of albumin, extension to larynx and nasal mucous membranes, hemorrhages from the fauces and nose, and an epidemic character.

Treatment. *No specific* plan of medication has been found uniformly successful. It is a disease of debility. The blood being more or less altered, it follows that *sustaining* measures should be resorted to in *all cases.*

That the real character of diphtheria is often misunderstood, may be inferred from a perusal of the medical periodicals of the day, it being proclaimed by a number of writers that in widespread epidemics of this most dangerous and fatal malady they had employed remedies so valuable that they had not lost a patient.

The *diet* should be of the most nutritious character from the onset, with such articles as milk, eggs, broths, and oysters, at *intervals* of every *two or three hours.* If deglutition be too painful, resort must be had to nutritious *enemata*, the following being a suitable formula :—

℞. Milk, ... f℥j
Spts. frumenti, ... f℥iv
Egg, ... One. M.
Sig.—Little salt added, beaten up and warmed.

Stimulants should be used boldly from the onset, guiding the dose by the effect; usually, a child of two years requires from *thirty* to *sixty minims* of *spiritus vini gallici* or *spiritus frumenti*, every two or three hours; an adult from *two* to *four drachms* every three hours. It is a mistake to wait for signs of debility before using alcohol in diphtheria.

Of drugs, two are warmly advocated: *Ferrum* and *Hydrargyrum*. Of the great value of *tinctura ferri chloridi* there is no question; but for *hydrargyri chloridum corrosivum*, it has hardly realized the expectations of the profession, except in laryngeal cases. A combination of *ferrum* and *potassii chloras*, in *full doses*, frequently repeated, have seemed, when begun early in the attack, to modify the course of the malady, and they have the additional advantage of acting locally upon the throat as they are swallowed. A good formula is—

℞. Tinct. ferri chlor., ... gtt. v–x–xx
Potassii chlor., ... gr. iij–v
Glycerini, ... ʒss
Syr. zingib., ... ad . . . . . fʒj–ij M.
Sig.—In water every three hours, for a child of two or three years.

Ferrum and *hydrargyri chloridum corrosivum*, repeated every second or third hour, may be combined as follows :—

℞. Hydrargyri chloridi corrosiv., ... gr. $\frac{1}{48}$
Tinct. ferri chloridi, ... ♏v–x
Glycerini, ... ♏x
Aquæ, ... ad . . . . . fʒj. M.
Sig.—Every hour or two, well diluted.

The efficacy of the above are greatly enhanced by the addition to each dose of *tinctura belladonnæ*, gtt. j–v.

Quinina, gr. xvj–xxiv per day for a young adult, and gr. v–x for a child, should be used throughout the disease; if irritability of the stomach prevent its administration by the mouth, it can be used as a *suppository*, or locally in the form of the *oleate*.

Calomel in small doses, combined with *sodii bicarbonas* every hour until the *breath becomes fœtid*, is beneficial, and especially in cases showing a tendency to spread toward the larynx. Indeed, a *tolerance* to calomel seems to exist in *diphtheria of the larynx*.

Pilocarpus has been recommended in diphtheria. I do not consider it a safe remedy in the majority of cases of this disease.

Watch the urine carefully throughout the disease; diminution in the amount is of bad prognosis.

Isolation of the patient and *disinfection* of the clothing and utensils is of importance. All clothing should be soaked twenty-four hours and boiled in a two per cent. solution of carbolic acid.

Inhalations of steam and hot water, and allowing the patient to suck pellets of ice, give relief. Sponges dipped in hot water and applied to the angles of the jaw are beneficial.

The chief danger of communication of the poison is the air exhaled from the fauces and from the surface. Dr. J. Lewis Smith recommends the following plan to counteract this danger. Add four ounces of the following solution to one quart of water and allow them to simmer constantly, near the patient, in a broad surfaced tin or zinc wash basin: ℞. olei eucalypt., acidi carbolici, āā f℥j, terebinthinæ, ℥viij. M. The vapor is strong, penetrating and prophylactic, but not unpleasant. In hot weather, or when fire is not convenient, saturate cloths a foot square with the same solution and place them on paper on the bed of the patient.

Locally. Two indications to be met, one to prevent or limit the local development of the bacilli, and the other to combat the effects of the toxic material which the bacilli produce. The first question asked is, can we dissolve the membrane? "In laboratory, yes, in throat, no" (Da Costa).

Cleanliness of the fauces is of the utmost importance, and if a *non-irritating disinfectant* be added, its value is enhanced. Prof. Bartholow "has seen excellent results from the frequent application of a solution of *acidum lacticum*, strong enough to taste sour, by means of a mop." Much good is reported from spraying the throat with a fifty per cent. solution of *hydrogen peroxide*. Swabbing the throat with the following is valuable:—

℞. Acidi carbolici, ... ♏xx
Tincturæ ferri chlor., ... f℥iv
Glycerini, ... f℥j
Aq. destil., ... f℥j M.

Sig.—Locally every three hours.

Applications of corrosive sublimate to the throat are often valuable. Dr. Ernest Laplace has demonstrated that corrosive sublimate in solution slightly acidulated with tartaric acid, has its germicide property increased, as in the following 1–500 solution (℞. Hydrargyri chlor. corrosiv. gr. 3.85; acid tartaric, gr. 19.25. M.).

The following, used as a *gargle*, or applied by a mop, is useful :—

℞. Potass. chlorat., ... ℥iv
Acid. carbol., ... gr. ij–iv
Tinct. myrrh, ... f℥j
Inf. cinchonæ, ... f℥ij. M.

Or—

℞. Ext. pancreatis, ... ℥j
Sodii bicarb., ... ℥iij.

Sig.—Add f℥j to aquæ f℥vj, and apply with camel's hair pencil.

I think it a mistake to struggle with children over their refusal to use a gargle or allow the use of the spray, as they don't know how to gargle and they are afraid of the spray. Much better to add plenty of glycerin to their medicine, and use no liquid for some time after swallowing the dose.

For *laryngeal diphtheria* the same general treatment, especially the *mercurial*, with *inhalations* of lime by slacking freshly-burned lime in a vessel and directing the vapor to the child by a newspaper, or some similar contrivance, or using three parts of *liquor calcis* and one part of *glycerin*, in an *atomizer*, every half hour or hour, or *liquor trypsin*, as a spray. If these means fail, resort must be had to *tracheotomy*, or *intubation of the larynx*, which have succeeded in many desperate cases.

For *nasal diphtheria*, the same general treatment, and syringing the nose every two or three hours with a weak solution *potassii chloras*, or *acidum carbolicum*, or *hydrogen peroxide*, or the following :—

℞. Sodii sulphit., ... ℥iij
Glycerini, ... f℥ij
Aquæ, ... f℥iv. M.

For *the paralysis*, *strychnina* and *ferrum* internally, or *strychnina* hypodermically, with the *galvanic* or *faradic current* locally.

ACUTE ARTICULAR RHEUMATISM.

Synonyms. Rheumatic fever; inflammatory rheumatism.

Definition. A constitutional disease, characterized by fever, inflammation in and around the joints, occurring in succession, and a great tendency to inflammation of either the endocardium or pericardium.

Causes. The *predisposing* causes are inherited tendency, scarlatina, and the puerperal state.

The *exciting* causes are exposure to cold and chilling of the body. Rheumatism rarely occurs before seven or after fifty years. The liability to the disease is increased by having had an attack.

Pathological Anatomy. The *blood* contains an excess of *lactic acid*. The *joints* bear the brunt of the attack; the synovial membrane is reddened, the vascularity of the synovial fringes is increased, so with the synovial fluid, which is thinner, of a reddish color, containing some gelatinous coagula of fibrin, and under the microscope nucleated cells, ordinary pus cells being rarely seen.

The swelling visible about the affected part depends mostly on inflammatory œdema of the connective tissue around the joint.

The *pain* is probably due, in all cases, to stretching of and pressure on the elements of the tissues by the dilated capillaries and the inflammatory œdema. For the changes which ensue when the endo- and pericardium are attacked, the reader is referred to the sections on those diseases.

Symptoms. Begins suddenly, generally at night, with a *chill* or chilliness, *pain* and *stiffness in the joints*, loss of appetite, at times, nausea and vomiting, followed by *fever*, the temperature soon reaching 102° F., to 104°, in rare cases 108° to 110° (*the hyperpyrexia*), the *pulse* seldom exceeding 95, *great thirst*, *profuse acid sweats*, scanty, *high colored*, *acid urine*, at times showing traces of albumin, the *bowels constipated*. The *fever* continues throughout the attack, showing marked remissions. Delirium is absent, except the *hyperpyrexia* occur. *Sleep* is prevented by the *pain* and the profuse *perspirations*. The strength is moderately well preserved.

The *skin* is often covered with an eruption of *miliaria rubra*, *red papules* and *miliaria alba*, the result of irritation at the orifices of the sweat glands, from the excessive perspiration.

The *local* phenomena are *pain*, *tenderness*, *increased heat*, *swelling* and *redness* of one or more joints; if but one joint, it is termed *monoarthritis*, if more than one, *polyarthritis*. *Pain* is aggravated by *motion* and *pressure*. *Swelling* is most apparent in those joints not covered with muscle, to wit: knee, wrist, elbow, ankle, and the hands and feet, and is proportionate to the acuteness of the attack.

The inflammation may abruptly cease at one or more joints, and as suddenly attack others.

The disease is extremely irregular as regards the number of joints affected, although the local manifestations are controlled by an important pathological law, to wit: *the law of parallelism*. Corresponding joints are often affected together, and when not, the different affected joints are either on one side of the body or those on both sides which are analogous, as the knee, elbow, wrist, ankle, hip, and shoulder, are attacked together.

Complications. Pericarditis, endocarditis, myocarditis, cerebral endarteritis, bronchitis, pneumonitis and pleuritis.

Duration. The duration of acute rheumatism is governed entirely by the presence or absence of complications. Uncomplicated cases recover in from *thirteen* to *twenty-one* days, although they may be prolonged to five or six weeks. Relapses are frequent.

Diagnosis. A typical case cannot be mistaken for any other disease, but cases running a *subacute* course may be mistaken for acute rheumatoid arthritis, gonorrhœal rheumatism, or pyæmia.

Acute rheumatoid arthritis attacks one joint at a time and becomes permanent, has slight if any fever, no sweats or cardiac lesions.

Gonorrhœal rheumatism is associated with a gleety discharge, or follows the sudden cessation of an acute or subacute gonorrheal discharge, attacks either the ankle or wrist only, is slowly influenced by treatment, and lacks the febrile phenomena.

Pyæmia is usually manifested at a single joint at the time, and is followed by suppuration and all the symptoms of hectic fever.

Prognosis. Recovery is the rule in uncomplicated cases, the mortality being about three per cent. When death occurs it usually depends upon hyperpyrexia, cardiac complication, or cerebral endarteritis.

Treatment. Owing to our imperfect knowledge of the exact nature of this most painful disease, its treatment still remains either empirical or is directed toward certain prominent symptoms or complications. Garrod claims that "colored water" is about as potent as anything else, for it is, he says, a "self-limited disease," sometimes running a long and sometimes a short course.

Rest in bed, whether the pain forces it or not, is important. *Warmth* is as imperative, for which purpose the patient should be kept in *blankets*—no sheets—and wear woolen garments. The *diet* should be easily digested food, milk being the most suitable.

Strong and vigorous patients do well with *acidum salicylicum* or the *salicylates* in large and frequently repeated doses.

℞. Acidi salicylici, ... ℥ss
Liq. ammonii acetat., ... f℥iv
Spts. ætheris nitrosi, ... f℥j
Syr. simplicis, ... f℥j. M.

Sig.—Tablespoonful every three hours, well diluted.

Or—

℞. Sodii salicylat., ... ℥j
Tinct. cinchonæ co., ... f℥iij
Elix. simplicis, ... f℥iij. M.

Sig.—Dessertspoonful every three or four hours, till relief, when widen interval.

If benefit follows, the evidence is quickly afforded in the relief of pain and the decline of the temperature and swelling. If, therefore, after three or four days' use of the salicylates or acidum salicylicum, as above recommended, signs of improvement are wanting, the treatment had better be changed for the *alkaline* treatment, which consists in the administration of *an ounce and a half* of the alkaline carbonates, either alone or with a vegetable acid, each twenty-four hours, until the *urine becomes neutral* or *alkaline*, when the quantity is reduced to an amount sufficient to maintain alkaline urine.

The following are good formulæ for the alkaline treatment:—

℞. Potassii bicarbonatis, ... ℥ij
Acid. tartarici, ... gr. xxx.

Dissolve in a glass of water and drink effervescing, every three hours.

Or—

℞. Potass. bicarb., ... ℥ij
Succi limonis, ... f℥iv
Aquæ cinnamomi, ... ad . . . . f℥ss. M.

Sig.—In water, every three hours.

After the more acute symptoms are relieved change whichever plan of medication has been used for *tinctura ferri chloridi*, gtt. xx, every three or four hours, well diluted, or for full doses of Basham's mixture.

Pale, feeble and anæmic patients, or attacks following scarlatina, are most favorably influenced with—

℞. Strychninæ sulph., ... gr. 1–60
Tinct. ferri chlor., ... gtt. xx–xxx
Liquor. ammonii acetat., ... f℥ss. M.

Sig.—Every four hours, in glass of water.

Or—

℞. Acid. salicylici, ... ℈viij
Ferri pyrophos., ... ℈iv
Sodii phosphat., ... ℥iij
Aquæ font., ... f℥ij. M.

Sig.—Tablespoonful every three or four hours.

Dr. S. Solis-Cohen has reported good results from the following combination, in anæmic and run down cases, to which he has given the name of mistura ferro-salicylata :—

℞. Sodii salicylatis, ... ℥iv
Liq. ammonii citratis, B. P., ... f℥ijss
Acidi citrici, ... gr. x
Olei gaultheriæ, ... ♏ xxxij
Glycerini, ... q. s. ad f℥iijss
Misce adde lente,
Tinct. ferri chloridi, ... f℥iv. M.

Sig.—One or two teaspoonsful every two, three, or four hours.

Prof. DaCosta reports a lessened proportion of *cardiac complications* with *ammonii bromidum*, gr. xv–xx, every four hours. I much prefer *ammonii salicylas*, gr. x–xv, in simple syrup, well diluted, every four or six hours.

Subacute attacks and lingering cases are favorably influenced by *cinchonidinæ salicylas*, or—

℞. Lithii salicylatis, ... gr. xv–xx
Syr. zingiberis, ... f℥j
Aq. laurocerasi, ... f℥j. M.

Every four hours.

Or—

℞. Potassii iodidi, ... ℈iv
Sodii salicylatis, ... ℥iv
Elix. cinchonæ, ... f℥iss
Infus. gentianæ, ... f℥iss
Aquæ destil., ... ℥j. M.

Sig.—Dessertspoonful every three or four hours, diluted.

Good results are reported from the use of *salol*, gr. v–x, every four hours, from *ammonii hydrochloras*, gr. xv–xx, every four hours, and from *salipyrin*, in solution, every four hours. (℞. Salipyrin, ℥iij; glycerini, f℥iij; syr. aurantii, f℥vj; aquæ destil., ad f℥vj. M. Sig.—Tablespoonful, well diluted).

Whichever plan, acidum salicylicum, salicylates, alkaline or ferrum, is adopted, *quinina*, gr. xij–xx, per day, should also be used.

Pain and *restlessness* should be controlled by *opium* in some form, in full doses, or *atropina*, gr. $\frac{1}{80}$, hypodermically.

For the *hyperpyrexia*, *quinina*, gr. xxx–lx, repeated p. r. n., with the *cold bath* or *wet pack*.

Locally, the affected joints should be wrapped in cotton-wool or flannel, saturated with a solution of *tinctura opii*, one part, and *liq. plumb. subacetat. dil.*, two parts, or *olei gaultheriæ*, f℥j, with lin. saponis comp. f℥iij, or—

℞. Sodii bicarbonatis, ... ℥ij
Tinct. opii, ... f℥ss
Aquæ bul., ... Oij. M.

Dr. Bartholow finds the application of *blisters* an effective method. He says: "I have small blisters, the size of a silver dollar, placed around the joint, leaving an interval between for succeeding applications. It is by no means so painful and disagreeable as it appears at first sight. The blisters remarkably relieve the pain, bring about a more alkaline condition of the blood, and render the urine less acid, or bring it to neutral, or even to alkaline."

The complications are to be treated according to their character.

MUSCULAR RHEUMATISM.

Synonyms. According to location, to wit: cephalodynia; lumbago; torticollis; pleurodynia.

Definition. An affection of the voluntary muscles, inflammatory in character, either *acute* or *chronic*; characterized by pain, tenderness, and stiffness of the affected muscles. It is never complicated with cardiac disease.

Causes. A disease of adult life. One attack predisposes to another. Almost always due to cold or damp, or direct draught of cold air. Gout increases the tendency to attacks.

Pathological Anatomy. The true nature of muscular rheumatism is not yet determined. Virchow suggests a "hyperæmia of, and scanty serous exudation between, the muscular striæ, and in chronic cases inflammatory proliferation of the connective tissue."

Symptoms. The *first* attack is generally *acute*. Onset rather sudden, with *pain* in the affected muscles, with slight *tenderness*, and considerable *stiffness* and *difficulty of movement*, by which also the pain is increased.

The suffering may be severe and constant, or only on motion. *Spasm* of the affected muscles may occur. *Objective* symptoms are wanting, except it is evident that the patient keeps the affected muscles as quiet as possible. Fever is absent. The pain may prevent sleep.

Duration, *acute* form, about one week. *Chronic* returns frequently, and finally becomes constant and aggravated when the weather is damp.

Varieties. It may affect any or all of the voluntary muscles, but its most frequent and important varieties are:—

1. *Cephalodynia*. Situated in the occipito-frontal muscles. Distinguished from *neuralgia* of the trifacial, or occipital nerve, by pain on both sides of the head, excited or aggravated by the movements of the muscle and by absence of disseminated points of tenderness.

The muscles of the eye may be affected, and movements of that organ excite pain. If the temporal and masseter muscles are attacked, mastication excites pain.

2. *Torticollis*. Wry neck, or stiff neck. Situated in the sterno-mastoid muscles. Generally limited to one side of the neck, toward which side the head is twisted, great pain being excited on attempting to turn to the opposite side. Rheumatism of the muscles of the back of the neck, *cervicodynia*, may be mistaken for occipital neuralgia.

3. *Pleurodynia*. Situated in the thoracic muscles, and may be mistaken for pleuritis, or intercostal neuralgia, from which it is differentiated by the absence of the diagnostic features of each. Pain is excited by forced breathing, coughing and sneezing.

4. *Lumbodynia* or *lumbago*. Situated in the mass of muscles and fasciæ which occupy the lumbar region. Most common variety. Usually affects both sides. It may set in rapidly and become very severe. Motion of any kind aggravates the pain, often becoming very sharp or stabbing in character. It is sometimes complicated with *acute sciatica*, when the suffering is agonizing.

Diagnosis. The different varieties may be mistaken for any of the following ailments, to wit: trifacial, occipital or intercostal neuralgia, pains of progressive muscular atrophy, neuritis, syphilis, metallic poisons, or painful affections of the loins, arising from calculi or gravel in the kidney.

A careful examination of the history is usually sufficient to arrive at a correct diagnosis.

Prognosis. Difficult to eradicate, and in chronic cases to ameliorate, but is not dangerous to life. Death never results.

Treatment. *Rest* is the first indication. This is accomplished in *pleurodynia* by firmly strapping the affected side with broad strips of plaster, extending from mid-spine to mid-sternum.

The *local* application to the affected muscles of *hot* poultices, made of two-thirds *pilocarpus* leaves, and one-third *flaxseed* meal, changing them every two hours, is the most rapidly successful treatment in acute cases.

Internally *antipyrin*, gr. x–xx, repeated in several hours, or *ammonii hydrochloras*, gr. xv–xx, every three hours, or *sodii salicylas*, gr. xv–xx, every two or three hours, are each of value. Prof. Bartholow declares that *lithii bromidum* is almost a specific in muscular rheumatism.

For the *pain*, and consequent sleeplessness, use—

℞. Pulv. ipecac et opii, ... gr. x
Potass. nitrat, ... gr. v–x. M.
Sig.—In powder, morning and night.

Or, hypodermically, at the seat of pain, *morphina*, gr. ⅛–¼, and *atropina*, gr. $\frac{1}{80}$, p. r. n.

The following liniment is valuable in many cases:—

℞. Quininæ sulph., ... gr. xl
Ol. gaultheriæ, ... ℥j
Lin. saponis co., ... ℥iij. M.
Sig.—Thoroughly applied several times a day.

In attacks where the disease is limited to a few muscles, the following liniment is valuable:—

℞. Chloral hydrat.,
Camphoræ, ... āā . . . ℥ss
M. et adde
Lanolin, ... ℥j. M.
Sig.—Apply locally.

In all forms, but more particularly in lumbago, a few dry cups over the seat of the pain give immediate relief.

Chronic cases: Rest, flannel worn next to the skin, stimulating and anodyne liniments, mild galvanism, dry heat, as ironing over the affected part with a common flat-iron, a piece of paper or towel being placed next to the skin.

Internally, *potassii iodidum*, *ammonii hydrochloras*, *sulphur*, *guaiacum* or *arsenicum* variously combined.

RHEUMATOID ARTHRITIS.

Synonyms. Arthritis deformans; rheumatic gout.

Definition. An inflammation of the joints, accompanied with but slight fever, without suppuration; progressive in character, causing nearly symmetrical enlargement and deformity of various articulations.

Causes. More common in females than in males, and in the weak and anæmic. Among the causes are bad hygiene, exposure, prolonged lactation, frequent pregnancies, menopause, grief, tubercular diathesis, and following attacks of articular rheumatism.

Pathological Anatomy. It is not rheumatism, as the blood contains no *lactic acid*. It is not gout, as *uric acid* is not found in the blood nor *urate of sodium* in the joints.

At first rheumatoid arthritis is attended with hyperæmia of the affected synovial membrane and increase of the synovial fluid. Soon the capsular ligament becomes irregularly thickened, the synovial fluid decreasing. If the process continue, the internal ligament is destroyed, thus allowing dislocation to occur. The inter-articular fibro-cartilages ulcerate and disappear, as do the cartilages covering the ends of the bones, the ends of the bones becoming smooth and eburnated, and often greatly enlarged.

Symptoms. Either *acute* or *chronic*, the latter most common.

Acute form involves several joints at the same time, and is attended with slight pyrexia.

Chronic form slowly involves one joint, which seemingly soon recovers, and is attacked again, and may never recover, but grows progressively worse.

The *joint* slowly *enlarges*, is *painful*, movement exciting *neuralgic pains* along the limb. Soon the articulation becomes *rigid* or slightly movable after prolonged attempts. Redness and tenderness are wanting. *Crepitation* is distinct after ulceration has destroyed the cartilage.

The hands are first involved, the disease spreading symmetrically from articulation to articulation, until in severe cases every joint is deformed.

Diagnosis. *Chronic articular rheumatism* is often confounded with rheumatoid arthritis; but the former lacks the marked structural changes and the progressive involvement of joint after joint.

Gout differs from rheumatoid arthritis by the presence of deposits of urate of sodium in the joints, the ears, tips of fingers and the bursæ over the olecranon process of the elbow, the presence of uric acid in the blood, and the decided history of acute paroxysms.

Gonorrhœal rheumatism, so-called, has symptoms akin to rheumatoid arthritis, but the history of urethral suppuration clears up the diagnosis.

Paralysis agitans, when pronounced, might be confounded with rheumatoid arthritis, if the examination were limited to the joints; but the whole history, such as the tremor, the gait, etc., should prevent error.

Prognosis. If early treatment be instituted, the disease may be held in abeyance for several years. After pronounced structural changes have begun, the malady is incurable, although it may remain stationary for a long time.

Treatment. If treatment be instituted before serious structural leisons have occurred, the author has seen benefit in many cases by the following treatment: *Oleum morrhuæ* carefully and thoroughly rubbed into the affected joints three times a day, with the internal use of *lithii citras effervescentes* ʒj, three times a day, and the following *tonic* mixture:—

℞. Massæ ferri carbonat., ... gr. v
Liquor. potass. arsenit., ... ♏ v
Vini xerici, ... fʒj
Aquæ, ... fʒj. M.
After meals, well diluted.

Sodii salicylas is recommended early in the disease.

Complete recoveries are reported from the long-continued administration in small doses of *liquor potassii arsenitis*.

Attention to diet and hygiene are also necessary. When structural changes have destroyed portions of the joint, palliative treatment is the only indication.

GOUT.

Synonyms. Podagra, gout in the foot; chiragra, the hand; gonagra, the knee.

Definition. A constitutional disease, usually inherited; characterized by the sudden occurrence of a paroxysm of severe pain and

swelling in one of the smaller joints—the great toe usually—with the presence of uric acid in the blood, and the deposit of the urate of sodium in the structure of the joint.

Causes. *Predisposing;* inherited, male more than female—women after menopause.

Exciting; malt liquor and wine drinking; large consumption of animal food; lead poisoning; winter season.

When inherited tendency, may begin early in life; when acquired tendency, after thirty-five years.

The pathological cause consists in the presence of an excess of *uric acid* in the blood, in the form of *urate of sodium.*

Pathological Anatomy. Gout is characterized by the deposit of *urate of sodium* from the blood into the structure of joints and tissues that are not very vascular. The deposit is associated with signs of inflammation, to wit: hyperæmia, redness of the surface, with swelling and effusion in and around the affected joint. The surfaces of the joint are incrusted with chalk-like masses, consisting of urates, which become greater with each attack, finally causing great deformity.

The deposit usually begins in the metatarso-phalangeal joint of the great toe, but other and many joints are soon affected.

The deposits may also be found in the knuckles, eyelids, and cartilages of the ear.

"Crystals of urate of soda are deposited in the tubules and intratubular tissues" of the kidneys—"gouty kidney"—and may be seen by the naked eye, the kidneys becoming small, granular and fibrous.

Hypertrophy of the left ventricle and of the arteries, ending in atheromatous changes, are results of gout.

Symptoms. *Acute gout* is rare in the United States. It occurs in paroxysms; one year's interval between the first and second attack; six months usually between the second and third, after which it may occur at any time.

Prodromes usually precede the paroxysm for several days, to wit: acid dyspepsia, constipation, headache and lassitude.

The *paroxysm* begins suddenly, between midnight and 2 A. M., with acute *pain* in the ball of the great toe, which becomes *red, hot, swollen,* and *so sensitive* that the slightest touch cannot be borne.

The veins are filled, the foot, ankle and leg swollen, and the limb

the seat of sudden spasmodic contractions, which increase the suffering; slight relief is afforded by elevating the limb. Associated with the local symptoms are *chill*, *fever*, quickened *pulse*, *thirst*, *coated tongue*, *constipation*, and *scanty*, *acid*, high-colored *urine*, which deposits, on cooling, a heavy *brick-dust* sediment.

Towards daylight the symptoms ameliorate, to return again at sundown, the severity gradually lessening, until the fourth or fifth day, when convalescence is established, the patient, as a rule, feeling better than before the attack.

Chronic Gout. Either the result of acute attacks or with a greater number of joints being attacked.

The *paroxysms* occur at any time, but develop slowly, with less pronounced local and general symptoms. Deposits are noticed, the joints becoming hard, knobby, and often distorted. The deposits or *chalk-stones* (urate of sodium) occur about the joints, tendons and bursæ, and helix of the ear.

Diagnosis. An error cannot occur if the history of the case can be obtained, to wit: hereditary tendency, age, sex (females rare, until menopause), mode of living, character of symptoms, and presence of the characteristic deposits.

Prognosis. Acute gout rarely fatal; is prone to return, but much depending upon the mode of living.

Chronic gout decidedly shortens life. The most serious signs are those indicating advanced renal disease, with non-elimination of uric acid. Gout influences unfavorably the prognosis from acute diseases or injuries.

Treatment. For the *acute paroxysms* at once, *vinum colchici radicis*, gtt. xv–xx–xxx, every two hours, *well diluted*, either alone or in combination with a *potassium* salt, or *sodii salicylas*, gr. xx, every three or four hours, well diluted. While the acute symptoms of gout are not so rapidly relieved by *sodii salicylas*, as are those of acute rheumatism, still it is an invaluable remedy and is rapidly succeeding colchicum. After the decrease of the acute symptoms, lessen the dose, but continue the remedy for some time.

Dr. Bartholow recommends the following pill:—

℞. Colchicinæ, ... gr. $\frac{1}{40}$
Ext. colocynth. comp., ... gr. ss
Quininæ sulph., ... gr. iij.

Every two or three hours.

For the *pain*, hypodermic injection of *morphina*, and wrapping the inflamed joint in cotton-wool saturated with *liq. plumb. sub-acetat. dil.* and *tinctura opii*.

The diet must be restricted to liquid food.

For subacute or lingering cases, and in chronic gout, *potassii iodidum* is valuable.

℞. Potassii iodidi, ... ℥ ij
Vini colchici radicis, ... f℥ iv
Aquæ destil, ... f℥ ijss. M.
Sig.—Teaspoonful, well diluted, after meals and bedtime.

For *chronic gout*, regulated diet, free action on the secretions, and *lithii citras effervescentes*, ℈j, three or four times a day, well diluted with water; and perhaps a course of *quinina*, *ferrum* and *arsenicum*.

To prevent paroxysm, keep secretions acting, by the free use of pure water or a good alkaline water, such as Buffalo lithia or Farmville lithia water, or Saratoga Vichy.

The diet is of the greatest importance, and should consist chiefly of vegetables and fruit, excepting tomatoes and strawberries; fresh meat may be used once a day, as may oysters, fish and soups. Alcoholic and malt liquors are contraindicated, as are tea and coffee; skimmed milk should replace all the above. No eggs or dishes containing eggs, no pastry, hot bread or cakes, no sweetmeats, spices or condiments.

Systematic exercise, especially walking, is of great advantage.

Cold bathing, with caution, while the vapor or Turkish bath are of benefit.

Changing from a cold to a warm climate in winter, and the use of flannel underclothing, are strongly recommended.

DIABETES MELLITUS.

Synonyms. Glycosuria; melituria.

Definition. A chronic affection characterized by the constant presence of grape sugar in the urine, an excessive urinary discharge, and the progressive loss of flesh and strength.

Causes. Most common in males. Occurs at all ages, but most frequently between twenty-five and fifty years. It is often hereditary. Disorders of the nervous, hepatic and renal systems. Excessive use of farinaceous food and malt liquors. Sexual excesses.

The exact *pathology* of diabetes mellitus differs in different cases, and in the present state of knowledge no exclusive view can be adopted. Still, there are reasons for believing that, in a large proportion of cases, the nervous system is primarily at fault, though the character of the lesions may differ.

Pathological Anatomy. None peculiar to diabetes are yet recognized.

Hyperæmia and hypertrophy of the liver and kidneys are generally present, the result of increased functional activity.

The changes in the lungs peculiar to phthisis are often found in very chronic cases.

The changes in the nervous system are not fully determined.

Symptoms. Clinically, cases differ greatly in their course and severity; one class presenting slight symptoms and a chronic course; another class having marked local and constitutional symptoms and running an acute course. The symptoms of a typical case may be arranged under the following heads:—

Urinary Organs and Urine. Micturition more frequent and the *urine increased* in quantity. *Pain* over the region of the kidneys.

The *quantity of urine* may amount to 4, 8, 12, 20 or 30 pints in twenty-four hours. It is usually *pale*, *clear*, and *watery*, having a *sweetish taste* and *odor*, the *specific gravity* ranging from 1.025 to 1.050. It ferments rapidly if kept in a warm place. It yields *grape sugar* to the usual tests, the amount present varying from *an ounce to two pounds* in the twenty-four hours.

The urea and uric acid are increased. Albumin may be present.

The increased passage of a large quantity of saccharine urine causes a constant itching, burning and uneasy sensation at the prepuce, along the urethra, and at the neck of the bladder; in females, itching and eczema of the vulva are common; in children, incontinence of urine is frequent.

Digestive Organs. An almost constant symptom is *thirst*, with a dry and parched condition of the mouth. At times the *appetite is excessive*, again absent. The breath may have a sweetish odor, the *tongue* irritable, red, and often cracked. *Dyspeptic symptoms* are common, and occasionally vomiting. The *bowels* are constipated, the stools pale and dry. At times diarrhœa may occur.

The patient complains of feeling *very weak*, languid, and of *sore-*

ness and pain in the limbs; there is more or less *emaciation*, a harsh, dry *skin*, the *countenance distressed and worn.*

The mind is often greatly altered; depression of spirits, decline in firmness of character and moral tone, with irritability, are present. Sexual inclination and power are demolished. Defects of vision are present.

The blood and various secretions contain sugar.

Complications. Pulmonary phthisis; Brights' disease; defects of vision from atrophy of the retina or the formation of a soft cataract; boils and carbuncles, and chronic skin affections, such as psoriasis and eczema.

Course. The clinical history varies in different cases. In the majority of instances the course is chronic, lasting for years, the symptoms beginning insidiously, and becoming progressively worse, with, at times, decided remissions. Occasionally the disease runs an acute course, death occurring within four or five weeks.

Termination. The majority of cases ultimately prove fatal, the symptoms markedly changing, the *urine* and *sugar diminishing* in quantity, the occurrence of *albuminuria*, *disgust for food and drink*, and the development of hectic fever and a colliquative diarrhœa.

The fatal result usually arises from *gradual exhaustion*, from blood poisoning, leading to *stupor*, *ending in complete coma*, or occasionally to *delirium* or *convulsions*, or from complications.

Rarely death occurs suddenly from *uræmic convulsions* or *uræmic coma.*

Diagnosis. Diabetes mellitus only exists when *grape sugar* is permanently present in the urine. "It is not the quantity, but the persistence of sugar which constitutes diabetes."

When are present grape sugar in the urine, with more or less increase in the urinary flow, it can be mistaken for no other affection.

From *Bright's disease*, by the absence of dropsy, and of tube casts in the urine; the amount of albumin in the urine is never so great or constant in diabetes mellitus as in Bright's disease.

From *Diabetes insipidus*, by the absence of sugar in the blood and urine, and the larger quantity of urine voided in polyuria.

Simple glycosuria differs from diabetic glycosuria in that the amount of sugar in the urine is not constant—at one time being present, at another absent—the amount of urine voided is never in excess of health; simple glycosuria is a disease of the aged; diabetic glycosuria

usually appears under fifty years. Simple glycosuria often results from the inhalation of chloroform, the use of chloral, in the insane, from excitement, or as one of the results of injuries to the head.

Prognosis. Most unfavorable as regards a cure, it being fairly questionable if complete recovery has ever occurred in a typical case. Still, decided amelioration may take place in the symptoms, and the progress of the malady be greatly retarded. The younger the patient the more rapid the fatal termination.

Treatment. Impress upon patients the importance of a strictly *regulated diet*. Prohibit or restrict the consumption of such articles as contain *sugar* or *starch*, especially ordinary bread or flour, sugar, honey, potatoes, peas, beans, rice, arrowroot, cracked wheat, oatmeal, turnips, beets, corn and carrots, prunes, grapes, figs, bananas, pears, apples, and liquors of all kinds whether distilled or fermented.

The main diet should be of *animal food*, including meat, poultry, game and fish.

A moderate amount of fluids should be allowed, and in a majority of cases *milk* will prove beneficial, although, theoretically, contra-indicated. Tea, coffee and cocoa, without sugar, may be allowed in moderation, *glycerin* or *saccharin* being used as a substitute for the sugar.

Regulated exercise is of importance. The patient should wear flannel, and have two or three warm baths every week, or an occasional Turkish bath.

Therapeutical Treatment. It is difficult to estimate justly the action of any drug in this disease, for, as is so well known, a proper modification of the diet will alone produce the most marked improvement.

Opium exercises an influence over the excretion of sugar, but the effect is not maintained in all cases. Pavy strongly urges the use of *codeina* in doses of gr. ½–iij, three times a day. The use of *morphina hydrochloras*, gr. j daily, or *pulvis opii*, gr. iij–v daily, is a favorite prescription. Prof. DaCosta suggests the use of *ergota*, which has decreased the urinary discharge and the quantity of sugar in a number of cases. Prof. Bartholow has met with an apparent cure by *ammonii carbonas*. *Uranii nitras*, gr. iij, three times daily, will often markedly reduce the urine and sugar, and *sodii salicylas*, gr. xv, three times daily, will markedly control the formation of sugar. *Liquor. bromini arsenitis*, ♏iij–v, three times a day, often gives good results. Dickinson remarks that "*strychnina* is, of all remedies, the most

constantly useful." *Potassii bromidum*, ʒj, during the twenty-four hours, is strongly urged. The following remedies are recommended by different observers, to wit: *pepsinum*, *liquor potassii arsenitis*, *iodum*, *potassii iodidum*, *acidum lacticum*, *glycerinum*, *quinina*, and *tinctura cannabis indicæ*. The evidence in favor of the majority of these drugs is far from satisfactory.

For *diabetic coma*, alkalies are particularly indicated. Sodium carbonas subcutaneously, or by intravenous injection, watching closely the effect on pulse and heart, as recommended by Stabelman. Use also inhalations of oxygen, and diuretics and fluids to promote elimination of toxic products.

Symptomatic treatment is mostly called for. For emaciation and anæmia, *ferrum* and *oleum morrhuæ*; for sleeplessness and restlessness, *morphina*, *potassii bromidum*, *chloral*, or *hyoscinæ hydrobromas*. For boils and carbuncles, *calcii sulphidum*. Duchenne suggests the following solution for the *excessive thirst* of diabetic patients :—

℞. Potassii phosphat., ... two parts
Aquæ, ... seventy-five parts.
Sig.—One teaspoonful twice or thrice daily in wine or hop tea.

The dyspepsia and lung symptoms must be managed on general principles.

The constant *galvanic current* has been productive of good results. A change of scene and air is beneficial.

Surgical operations should on no account be undertaken on diabetic patients.

DIABETES INSIPIDUS.

Synonyms. Polyuria; polydipsia.

Definition. An affection characterized by the habitual discharge of a very large quantity of pale, watery urine, free from albumin and sugar.

Causes. Occasionally hereditary, or diabetes mellitus may have existed in the parent; more common in children or young adults; men are more liable than women; injuries and diseases of the nervous system; exposure to cold; drinking freely of cold water; fatigue; prolonged debility; malaria; syphilis.

The probable immediate cause of the excessive flow of urine consists in dilatation of the renal vessels, the result of paralysis of their

muscular coat, caused by derangement of innervation, as the condition can be induced experimentally by irritating a spot in the fourth ventricle, or by section of portions of the sympathetic nerve.

Symptoms. The affection is characterized by *great thirst*, with an increased flow of pale, watery, slightly acid urine, the amount varying from *one to five or six gallons* in the twenty-four hours. The *specific gravity* ranges from 1.001–1.007. *Sugar and albumin are absent.* Urea and the other solids are increased. The *appetite* is voracious, the *bowels* are obstinately constipated, and the *skin* is dry and harsh.

The large flow of urine is usually preceded by various nervous phenomena, as *nervousness, irritability, inability to concentrate the mind, vivid imagination, a failure of memory, and headache.*

Unless the affection is soon arrested great loss of flesh and strength result.

Diagnosis. It differs from *diabetes mellitus* by the absence of grape sugar in the urine.

From *paroxysmal diuresis*, by the absence of the increased urine permanently.

From *interstitial nephritis*, by the greater amount of urinary discharge and the absence of albumin, œdema, and casts.

Prognosis. Rather unfavorable as to a radical cure, unless caused by syphilis. Death rarely is due to the diabetes, but to some intercurrent malady that the patient has been unable to withstand, on account of the weakness produced by the diabetes.

Treatment. If due to syphilis, *potassii iodidum* and *hydrargyrum* are of real benefit. Prof. DaCosta has had success with *ergota* in the form of the fluid extract or the aqueous extract. *Pilocarpus* has been used with success. Prof. Bartholow recommends *galvanism* in cases not cured by potassii iodidum, placing "one electrode to the neck below the occiput, the other to the hypochondriac region in turn." *Valerian, potassii bromidum*, and *sodii salicylas* have been used. The author has effected a cure in three cases, where other remedies had failed, by the use, internally, of—

℞. Strychninæ sulphatis, ... gr. $\frac{1}{40}$
Acid. hydrochlor. dil., ... ♏x
Aquæ laurocerasi, ... f℥ij. M.
Well diluted.

The obstinate constipation is best overcome by *pilulæ catharticæ compositæ*, one at bedtime.

LITHÆMIA.

Synonyms. Lithiasis; uric acid diathesis; half gout.

Definition. A condition in which the fluids of the body are saturated with nitrogenized waste, in the form of *lithic* or *uric acid;* characterized by marked dyspepsia, various nervous phenomena, muscular and articular pains, bronchial catarrh, all or any of these associated with scanty, high colored, acid urine.

Causes. High living, with little exercise; imperfect digestion of nitrogenized food; impaired elimination of uric acid.

Pathology. Not yet clearly determined. The non-elimination of certain products which have a deleterious influence upon the nervous system. That uric acid does exist in the blood is now generally accepted.

Symptoms. Those of *dyspepsia* associated with *irregular bowels*, scanty, high-colored, *acid urine*, sp. gr. 1.024–1.028, containing neither sugar nor albumin, but showing an *increased* proportion of *urates*. Also *depressed spirits*, *impaired memory*, *loss of interest in occupation*, *sleepless nights*, attacks of *vertigo*, neuralgic *pains* in the head, and a constant dread of apoplexy or cerebral disease. Also *pains in the joints*, neuralgic in character.

If the condition be allowed to continue, the following organic changes may result, to wit: fatty heart; fibroid kidney; enlarged liver, or changes in the cerebral vessels.

Diagnosis. From gout, by the absence of acute paroxysms and resulting changes in the joints.

Prognosis. If properly recognized and treated, complete recovery will result, although it is a disorder of long duration.

If not properly treated, develops some one of the organic diseases mentioned.

Treatment. Regular diet, using fresh meat once daily, poultry, game (plainly cooked), fresh fish, oysters, occasionally eggs, lettuce, spinach, celery, cold slaw and tomatoes; avoid all kinds of starchy and saccharine foods, also all stimulants, tea and coffee, using milk, skimmed milk, or milk and cream. Act freely on all the secretions, particularly the liver and kidneys. Systematic exercise. Avoid tonics, bromides, chloral and opium. Long course of alkaline waters, particularly the lithia waters. Good results follow *lithii citras*, gr. xx, t. d., *sodii phosphas*, gr. xxx, ter die, or *acidum benzoicum*, gr. x, t. d.,

all well diluted with water. One of the very best drugs is *acidum nitricum dilutum*, gtt. x, in half a glass of water, four times a day, with the occasional use of *pilulæ rhei compositæ* at bedtime. *Strontium* has acted nicely in several cases.

℞. Strontii bromidi puræ, ... ℥ iss
Glycerini, ... f℥ ij
Infus. gentianæ, ... f℥ vj. M.
Sig.—f℥ ij before meals, well diluted

CHOLERA.

Synonyms. Epidemic cholera; Asiatic cholera; malignant cholera; spasmodic cholera.

Definition. An acute, specific, infectious disease, epidemic in the majority of, although endemic in other, localities; characterized by the transudation of serum into the stomach and intestinal canal, and violent purging of a peculiar, rice-water-like fluid, the persistent vomiting of a similar material, severe muscular cramps, and a condition of prostration, followed by collapse and death, or of a reaction from the collapse and the development of the typhoid state (*cholera typhoid*).

Causes. A *specific poison*, the "comma bacillus" of Koch. Cholera is but feebly *contagious*, in the usual acceptation of that word, but it is unquestionably *infectious*.

The evidence seems conclusive that the *cholera stools* are the main, if not the only, channel of infection, and that the great cause of the propagation of cholera is the contamination, with the cholera stools, of the water used for drinking purposes. Milk may also be the vehicle by which it spreads. It is claimed that the bacillus is inert in the intestinal canal unless the individual is in the "receptive state—" that is a condition of intestinal catarrh, such as results from eating unripe fruit, beer and spirit drinking, and indigestible food. It is also determined that the bacilli are destroyed by acids, and that if the stomach be normal, cholera will not result. "With pure water, pure air, pure soil and pure habits, cholera need not be feared." (Hart.)

Little, if any, danger exists from being in the presence of the affected, although the emanations from the cholera excreta in the atmosphere may generate the disease if swallowed or inhaled. The dead bodies of cholera subjects apparently possess slight infective

property, "the bacteria of decomposition" probably destroying the cholera germs. One attack does not afford protection against another.

The *period of incubation* is short, under a week, usually.

Pathological Anatomy. This is, as yet, far from satisfactory. The morbid appearances in the majority of cases of death from cholera may be thus summarized. The temperature generally rises after death, the body remaining warm for a considerable time. Rigor mortis rapidly ensues, the muscular contractions being often so powerful as to displace and distort the limbs. The skin is mottled and the body greatly shrunken. The blood is darker in color, thick, viscid, feebly coagulable, and slightly acid. The arteries are quite empty of blood; the veins, on the other hand, are distended. The organs are, as a rule, pale and shrunken.

The stomach and intestinal mucous membranes are congested, and present evidence of extravasation and ecchymoses, or are bleached and pale. The stomach and intestines usually contain a quantity of whey-like material, having an alkaline reaction, as well as quantities of cast-off epithelium and the peculiar bacillus. It is thought by many that the stripping-off of the epithelium is a post-mortem phenomenon. The Peyer's solitary and Brunner's glands are usually enlarged and prominent, and occasionally evidences of ulceration are apparent in the solitary glands, and sections placed under the microscope show the "comma bacillus." The villi of the mucous membrane, as well as the epithelium of the small intestines, are stripped off, leaving the basement membrane, for the most part, exposed. The *liver* is more or less advanced in fatty degeneration, presenting a somewhat mottled, yellowish discoloration. The *kidneys* are congested, the epithelium of the tubules granular and detached from the basement membrane, blocking up the tubes. Prof. Bartholow observed, in all of his autopsies, "considerable hyperæmia and dilatation of the vessels of the medulla oblongata. The constancy of this lesion would seem to indicate a relationship between congestion of the medulla and the cramps."

Symptoms. In accordance with the law of epidemic infectious diseases, the onset, course and character of the symptoms vary in different cases and at different periods in the same epidemic.

The disease may either set in suddenly in a patient previously in good health, or it may follow an attack of rather severe and persistent

diarrhœa, with *pain*, *nausea*, *vomiting and depression*. Such cases are termed *Cholerine*, the stools of which are infectious.

In a typical case there are three stages: *first*, diarrhœa; *second*, prostration; *third*, collapse, or, in favorable cases, reaction.

First Stage. Begins with *chilliness*, excessive *thirst*, coated tongue, unpleasant taste in the mouth, slight abdominal *pain*, and three or four copious, *watery*, yet fæcal *stools* during the day, and a decided feeling of *weakness*, the stools rapidly becoming *whey-like*, easily voided, but with force and only slight pain.

Second Stage. The *stools* rapidly increase in number, are voided with a rushing force, and consist of many quarts of grayish, or whitish, *rice-water-like* fluid, accompanied with forcible *vomiting*, first of the contents of the stomach, mixed with more or less bilious matter, afterward of the peculiar rice-water-like material; *thirst* becomes most intense, increasing or diminishing with the variations in the number of the vomiting and stools; severe *muscular cramps* soon follow, most severe in the calves, although occurring in all parts of the body.

Third Stage. The stools, vomiting and cramps continue. The appearance of the patient becomes frightful; the eyes are sunken and surrounded by blackened rings, the nose pinched and pointed, the cheeks hollow, and the lips blue (facies cholerica); the surface cold and moistened with a sticky perspiration; the skin of the hands and fingers has the sodden appearance of the "washerwoman who has washed all day," and if picked up in folds, the fold but slowly disappears. The *temperature* rapidly falls, the *pulse* becomes small and compressible, barely perceptible at the wrist, and the heart beats are scarcely recognizable. The *voice* is weak, husky and sepulchral (vox cholerica), the tongue is like ice, the *breath is cold* and *icy*, the *urine* markedly diminished and albuminous. The *mind* is not cloudy, but most patients are apathetic and indifferent to their danger. This, the *algid* stage of cholera, or *cholera asphyxia*, usually terminates in death in from three to twelve, twenty-four or forty-eight hours, but *reaction* may be established.

Stage of Reaction. The temperature of the body rises, the pulse gradually becomes fuller and stronger, the countenance becomes brighter, the stools less frequent and more fæcal, the vomiting decreases, the thirst lessens, the urine increases in amount, but continues albuminous, the patient entering a slow convalescence, or

typhoid symptoms develop, the so-called *cholera typhoid*, which prolongs the recovery for several weeks.

Convalescence is often prolonged and complicated by the development of severe bed sores, boils, bronchitis, pneumonia or parotitis.

Sequelæ. Suppuration of the parotid gland; painful tetanic contraction of the flexor muscles of the limbs; abscesses or ulcers of the limbs; profuse sweats; roseola, erythema, urticaria, and rarely vesicular eruptions.

Diagnosis. The epidemic character, and rapid spreading, and great mortality of the affection prevents its being mistaken for any other disease, although isolated cases are often confounded with cholerine or with cholera morbus, the points of distinction being few, unless the "comma bacillus" only be found in the stools of true cholera.

Prognosis. Very unfavorable, the mortality ranging from twenty to eighty per cent. The last epidemic in this country was much milder than former ones. The prognosis is controlled by the general condition of the patient, the age, habits, and the development of the algid stage; the prognosis being more favorable in those cases which develop gradually than in those in which it reaches its acme at a single bound; the very young or very old, those addicted to the various excesses and surrounded by unfavorable hygienic conditions, are more apt to perish than are others.

Treatment. The success depends, to a great extent, upon its prompt and early treatment, for experience amply attests that the arrest of the disease in the diarrhœal stage is comparatively easy, and that in the stage of collapse its cure by any means whatever is altogether an exceptional occurrence; therefore, during the prevalence of cholera the mildest cases of diarrhœa ought to receive prompt treatment, for many cases have their beginning as a mild diarrhœa.

It must not be overlooked that intelligent nursing and regimen are equally as important as medical treatment.

The patient should be put to bed at once, and all food withheld for a time at least. Small pellets of ice may be allowed instead of water.

"Of all the remedies proposed for the arrest of the diarrhœa, not one has done so much good as sulphuric acid. It is usual, and generally best, to combine some opium with it (℞. Acid. sulphuric. aromat. f℥v, tinct. opii deodorat. f℥iij. M., S. Ten to twenty drops every hour or two in sufficient water)." (*Bartholow.*)

Large doses of *bismuth* should be of value in this early stage, but *opium* is particularly indicated, preferably in the form of morphia hypodermically. During the epidemics of 1892–93, good results were reported from the internal use of *hydrogen peroxide*, f ℥ ij, with *aqua destillata*, f ℥ viij, in cupful doses every two hours. *Salol* and *plumbi acetas* are of value for the early diarrhœa.

Ziemssen says: "Calomel has the first place of all drugs which have been recommended in the prodromal stage. Begin with two or three doses of gr. vij, followed with small doses—gr. ¾—every two hours."

It is now generally admitted that as the first symptoms of cholera are those of intestinal catarrh, direct medication ought to be of the greatest service. This is done by *enteroclysis* or irrigation of the canal, with large amounts, from one to three gallons twice daily, of hot soaped water, hot four per cent. solutions of hydrogen peroxide, or weak solutions of tannin, or hot one per cent. solutions of common salt.

The enteroclysis is accomplished by means of a soft rubber tube, one metre in length and of suitable size to be introduced into the rectum, in front of the promontory of the sacrum, into and up through the sigmoid flexure and into the descending colon. This tube which is connected with a reservoir should not be too small nor too large, in order to facilitate its introduction through the folds of the sigmoid portion of the lower bowel.

In fact, the greatest difficulty to be encountered, is to successfully pass the tube in front of the promontory of the sacrum, and enter it into the sigmoid flexure. The tube should be of proper firmness to prevent it from bending or buckling upon itself when the end (which in all cases should be rounded) comes in contact with the obstructing folds of the intestine.

For the distressing vomiting, lavage of stomach with H_2O_2, f℥ij (medicinal) to two or three pints of hot water, or *iced champagne*, *cocaine*, or *acidum hydrocyanicum* may sometimes give relief.

Locally, either continue the *mustard* application to the abdomen or the constant use of rubber bags filled with boiling water.

For the *cramps*, hot water in bottles, hot irons or bricks applied over painful parts, or an ointment of chloroform or chloral, chloroform or ether inhalations, or the use of the following hypodermic solution, strongly recommended by Prof. Bartholow (℞. Chloral, ℥iij,

morphinæ sulph., gr. iv, aq. laurocerasi, f℥j. M. SIG.—Fifteen to thirty minims each injection.)

For the collapse, heat to the surface and the free use of *stimulants*, or *spiritus frumenti* or *spiritus vini gallici*, hypodermically, also the hot bath, also *hypodermatoclysis* and the intravenous injection of saline fluids and hypodermic injections of strychninæ sulphas., gr. $\frac{1}{20}$. *Heat* is of the greatest value in all stages of cholera, both externally as very hot baths (hot air or hot water), and hot rectal injections.

If reaction occur, treat indications as they arise, and use tonics, such as *ferrum*, *quinina* and *arsenicum*.

All the discharges from the patient should be thoroughly *disinfected* as soon as voided, and the stools and vomited material buried.

TRICHINOSIS.

Synonyms. Trichinæ ; Trichina spiralis ; " flesh-worm disease."

Definition. A typhoid condition, the result of the entrance of a parasite—the *Trichina spiralis*—into the intestinal canal, and their subsequent migration into the muscular structure : characterized by severe gastro-intestinal irritation, severe muscular soreness, and a low typhoid condition.

Cause. The *Trichina spiralis* are introduced into the human body by eating the infected hog's flesh, either raw or but imperfectly cooked.

Description. The parasite is found in two forms, to wit : *intestinal trichina*, which is sexually mature, and *muscle trichina*, which is sexually immature.

The *intestinal trichina* is a small, hair-like worm, the male measuring $\frac{1}{18}$ of an inch, and the female $\frac{1}{8}$ of an inch in length ; the head is smaller than the rest of the body ; the tail of the male has a bi-lobed prominence, between the divisions of which the anal opening is placed, and from which a single spiculum can be protruded ; the female has a blunt, rounded tail, the reproductive outlet being situated toward the anterior part of the body ; the ova are very small, containing embryos being produced viviparously at the rate of at least one hundred each week after the entrance of the female into the intestinal canal.

The *muscle trichina* develops its sexual apparatus after it has entered the intestinal canal of the host.

The viable embryos discharged from the female are in a state of motion, and at once migrate from the intestines to the muscular structure of the individual, and here set up inflammatory action, they becoming surrounded by a capsule or shell in which they are coiled.

After a time, in the muscle, the *trichina* undergoes a further change; lime salts being deposited in and about the capsule and in the parasite itself, when minute specks of lime are seen distributed throughout the muscular structure.

The development of the parasite from the period of impregnation up to the time of sexual maturity is, under favorable conditions, less than three weeks. Within two days from the ingestion of the infected pork occurs the maturation of the muscle larvæ; in six days more the birth of embryos occur, and in about two weeks the migrating progeny have arrived at their *habitat*, the muscular structure.

Symptoms. These depend upon the number of parasites in the infected food. According to Dr. Sutton, of Indiana, a piece of pork the size of a cubic inch contained eighty thousand trichinæ. There are *three stages* described, to wit: the *intestinal*, the *migration*, and the *encapsulation*.

Intestinal stage, a gastro-intestinal inflammation, with *nausea*, *vomiting*, and *watery diarrhœa*, the severity depending upon the number of the parasites ingested.

Migration stage, a *typhoid-like fever*, *rapid*, *feeble pulse*, profuse *sweats*, intense *thirst*, dry tongue and lips, and *red*, *swollen face*, with *soreness* and *tenderness* of the *muscular structure*, increased by any muscular act. As a rule the mind is clear but decidedly *apathetic*.

Encapsulation Stage. If the number of parasites ingested have been few, recovery may occur in this stage, but if the number have been large, the gastro-enteritis, fever and muscular phenomena are severe, the patient is in a critical condition, between twenty and fifty per cent. succumbing.

Diagnosis. Unless the physician has some intimation of the cause, cases are readily mistaken for either ordinary ileo-colitis or typhoid fever.

Prognosis. Depends upon the number of trichinæ in the pork eaten. Mortality between twenty and fifty per cent.

Treatment. The preventive treatment consists in eating no pork that has not been so prepared as to kill any trichinæ that might exist. If the parasites have been recently taken, within the first four or five days, *emetics* and *purgatives* to remove them from the stomach and intestinal canal are indicated. After thorough action from these, attempts may be made to destroy such of the parasites as have escaped the action of the emetic or purgative. For this purpose much is said in favor of *glycerini*, one part, *aquæ*, two parts; or a trial can be made of *acidum carbolicum* and *tinct. iodi*, as suggested by Prof. Bartholow. *Quinina* gave the best results in the cases seen by Dr. Sutton.

After *migration* has begun, the powers of life should be sustained by nourishing food, stimulants and tonics, as "there are no drugs which have any influence upon the embryos in their migration through the muscles." (Osler.)

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